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NOTES FROM AN ARCTIC JOURNAL.

By H. W. FEILDEN, F.G.S., C.M.Z.S.

(NATURALIST TO THE POLAR EXPEDITION, 1875-76).

DURING fifteen months that I spent within the Arctic Circle with the Polar Expedition of 1875-76, I kept a regular journal, which was daily entered, either in a note-book when travelling, or more fully when on board ship. It is not proposed to reprint this journal *in extenso,* but it is believed that extracts relating to the Botany, Zoology, and Geology of the voyage, if brought together in a consecutive form and sufficiently condensed, will interest the reader, without committing him to wade through the historical account of the Expedition. It is, however, with some diffidence that I have undertaken the task, because three separate works on the subject have recently appeared. In the first, Sir George Nares, the Commander of the Expedition, published a carefully compiled historical account of the voyage;* in the second, Capt. Markham, of the 'Alert,' has given a graphic account of his experiences and his journey over the ice of the Polar Sea;† whilst, thirdly, Dr. Moss, of the 'Alert,' has just published a magnificent volume,‡ containing a series of unrivalled Polar sketches, in which the reader is brought face to face with the scenery of the Arctic World. Many references to the Natural History of the region visited are scattered through the pages of these three works, whilst in a series of appendices to Sir George Nares' narrative, a condensed account of the salient features of the Natural-History Collections of the Expedition is recorded.

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* 'Narrative of a Voyage to the Polar Sea in H.M. ships "Alert" and "Discovery."'

† 'The Great Frozen Sea.'

‡ 'Shores of the Polar Sea.'

A mere enumeration of species procured, though valuable in a scientific point of view as affording a basis for the study of distribution, fails to convey to the reader any idea of the natural features of the country. In the following notes, therefore, the writer's endeavour has been not to weary the reader with a recapitulation of scientific names, but to bring to his mind's eye some slight idea of the physical aspect of the Polar zone; the paucity, yet interest, of its alpine flora; the extraordinary manner in which mammalian life is supported on a land apparently so barren that a casual observer would pronounce it absolutely desert; to draw some attention to the amount of invertebrate life in a sea just above the freezing-point; and to consider those startling changes which must have occurred in the history of our planet to have converted a sea, once crowded with reef-forming corals, to one on which now floats a perennial ice-cap.

The appointment of two gentlemen to accompany the Arctic Expedition of 1875-76 as naturalists, was based upon a recommendation of the President and Council of the Royal Society, which received the approval of the Lords Commissioners of Her Majesty's Treasury. Although these appointments interfered with the *personnel* of the Expedition as first decided on, yet the Lords Commissioners of the Admiralty, with the greatest liberality, modified the previous arrangement, and made provision for the reception on board of H.M. ships 'Alert' and 'Discovery' of two gentlemen to serve as naturalists, with the same pay, clothing, and emoluments as the lieutenants of the Expedition. In the first instance, the appointment of surgeon and naturalist to both vessels had been combined in persons eminently qualified for both duties, and it is not unnatural to suppose that it must have been a source of considerable disappointment to those gentlemen to find that the official means of carrying out their favourite studies as naturalists were transferred to others, not members of the naval profession. I have therefore the greater pleasure in recording how indebted I am to Dr. Edward L. Moss, surgeon of the 'Alert,' and Dr. Richard Coppinger, surgeon of the 'Discovery,' for their valuable and generous assistance during the voyage, and the liberal manner in which their collections were placed at my disposal on the return of the Expedition.

The Arctic Expedition, composed of H.M. ships 'Alert' and 'Discovery,' accompanied by the 'Valorous,' sailed from Portsmouth for Greenland on the 29th May, 1875, under the command of Captain G. S. Nares, R.N. A rough voyage across the Atlantic, in a small ship over-crowded with stores, afforded but few opportunities for researches in Natural History, whilst a cabin six feet by seven feet, containing clothes, appurtenances and outfit for a possible residence of three years within the Arctic Circle, was not conducive to the happiness or comfort of a landsman. Most of my time, in consequence, was passed on deck endeavouring to find a dry corner, when not at meals or sleeping. At times the weather moderated sufficiently to permit the use of the towing-net, when some of the Atlantic surface-fauna was brought on board, which, placed under the microscope, served to wile away an hour. A few species of sea-birds were observed between Ireland and Cape Farewell, and the observations on their habits, and dispersion over the Atlantic admit of the following notice.

On the 6th June, when 170 miles west of the coast of Galway and 360 miles south-west of St. Kilda,—the nearest known breeding station of the species,—Fulmars, *Fulmarus glacialis*, approached the ship, and remained constant attendants until entering the ice of Smith Sound, a distance of twenty-five degrees of latitude, or over 1500 miles. I have referred in a previous volume* to the peculiar distribution of the Fulmar in the Atlantic, namely, to the north of the fifty-third parallel, an observation first recorded by the late Professor Goodsir. That this bird should be extremely common in the Atlantic in the latitude of Ireland, whilst Thompson† considered it an extremely rare visitor to the same coast, is noteworthy. Its absence from the neighbourhood of the Shetland Islands during the breeding season, with its presence some thirty or forty miles to the northward, and its abundance around the Færoe Islands, where it has been a breeding species for the last forty years, are points in the natural history of this bird which require elucidation. Fulmars and Petrels are far closer attendants on a vessel during rough than smooth weather, the reason doubtless being that the marine organisms which compose their usual food sink to a stratum of undisturbed water when the surface-layer of the sea becomes agitated by storms. The blue variety of the Fulmar is apparently merely an immature stage of the same species. In the North Atlantic and Baffin Bay the blue and light varieties occur in the proportion of about one to ten; but I never saw a blue-plumaged bird captured, the light-coloured and more powerful birds buffeting the others from the bait.

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* 'The Zoologist,' 1877, p. 470.

† 'Nat. Hist. Ireland,' vol. iii., p. 406.

Kittiwakes, *Rissa tridactyla*, all immature birds, followed the vessel in June some 150 miles from the Irish coast, and then left. As we approached within fifty miles of the shores of Greenland they again came round the ship. In autumn this species appears distributed over the entire North Atlantic; I observed them daily between Cape Farewell and Ireland.

In mid-Atlantic a single Arctic Tern, *Sterna macrura*, approached the ship during a gale of wind. It seemed tired, and settled on an empty cask which was thrown overboard.

In summer *Puffinus major* is abundant about the fifty-ninth parallel, off Cape Farewell, and has received from the whalers the name of "Cape Hen." A second and smaller species is equally common, which Mr. Dresser, from my description, surmises, no doubt correctly, to be *Puffinus griseus*. In autumn the range of the Greater Shearwater extends over the North Atlantic from the latitude of Cape Farewell to the coast of Kerry.

Small Petrels often followed in the track of the vessel, but as no example was captured I am not certain of the species. None were noticed to the northward of lat. 57°, two degrees to the south of Cape Farewell.

The Fulmars, Petrels and Gulls that follow a ship disperse and quit the wake of the vessel at nightfall. I frequently remained on deck during the middle watch to notice at what hour the sea-birds reappeared. The first to return were the small Petrels; some of these arrived with the glimpse of dawn, and might be seen hawking like Martins round the ship. Then a Fulmar or two came flying towards the vessel from different points of the compass, arriving in twos and threes until the usual assemblage had congregated in its wake. Sea-birds, according to my observation, do not follow a ship during the hours of darkness or in moonlight.

As we neared the coast of Greenland, in the latitude of Cape Desolation, we first encountered ice. It consisted of fragments of ancient floes, or ice formed on the surface of the sea by direct congelation. The term "floe" is applied by Arctic navigators to this description of ice. A "floe" may be miles in extent or only a few acres in size. The term "iceberg" or "berg" is applied only to freshwater ice that has been formed on land and by the agency of glaciers thrust into the sea. When floes have been broken up into pieces of comparatively small size, the term "pack-ice" is applied to it. Pack-ice is designated loose or close pack according to the juxtaposition of its component pieces. In the vocabulary of the Arctic traveller these definitions are multiplied to a great extent by various designations applied to local conditions, or variations in the size, shape, or consistency of the ice-masses, all of which terms are of peculiar significance and value to the navigator in the frozen seas, but not to the general reader.

Throughout the stretch of nature I know of no sight more enchanting than that when steaming amidst ice, on a placid sea, surrounded with brilliant sunshine. Beautiful as are the colours in the tropics, they are equalled, if not surpassed, by the hues of the Arctic Seas. The pieces of ice which surrounded us were worn, fretted, and honeycombed by the continual motion of the warm sea-water, and had assumed the most extraordinary shapes. It required but little effort of the imagination to convert one fragment into the likeness of an immense bird; another into that of a bear, or an enormous coral, a house, a pillar, or indeed almost any object one's fancy dictated. The colours reflected from the ice were indeed lovely. In many pieces bright blues were the predominant shades, the tint on the edges of the masses above water being of a cerulean hue, deepening in intensity towards the centre, until, in the depths of a water-worn grotto, it rivalled the richest sapphirine-violet; the submerged portions of the ice appeared bright green through the setting of a dull green sea.

A few Looms, *Alca Brunnichi*, and Little Auks, *Mergulus alle*, enlivened the scene, whilst here and there Seals were stretching themselves most unconcernedly on the pieces of ice.

The position where this pack-ice is met with off Cape Farewell, being south of the parallel of sixty, or about that of Lerwick in the Shetland Islands, and Bergen in Norway, and over three degrees south of Trondhjem, is at the first glance so surprising that it is worth while devoting a short space to a consideration of the subject, and when we reflect how intimately connected is the existence of the present flora and fauna of Western Europe with the deflection of the East Greenland ice-stream around Cape Farewell to the American continent, it must be admitted that the subject is one deserving the attention of all persons professing to be naturalists. Without entering into a discussion on ocean circulation, which would occupy too much space, we must, in the first instance, direct our thoughts to the equatorial regions of the Atlantic, where the prevailing and constant winds propel the warm water of the tropics against the long breakwater of the two Americas. Finding no loophole of escape in that direction, this mass of water naturally seeks an outlet towards the point of least resistance, which is across the North Atlantic, through the gap between Iceland and the north of Scotland, along the western coast of Norway, washing the shores of Spitsbergen, and finally entering the vast refrigerator of the Polar Basin. The influx of this enormous body of heated water necessitates a corresponding outflow of colder water, and we find that such exists, the main current passing south along the east coast of Greenland, bearing on its surface the decaying ice of the Polar floes. Sweeping around Cape Farewell, part of this current is deflected along the western shore of South Greenland, then joining with the southerly setting current of Baffin Bay and Smith Sound, the great mass of cold water, laden with icebergs, moves towards the shores of Newfoundland and Labrador and the coasts of New England.

Though somewhat of a digression, it is essential that the effects of the warm north-setting and the cold south-setting currents should be duly considered, otherwise no correct appreciation can be obtained of the Natural History of the Polar Regions; and when we reflect that the south-western shore of Spitsbergen, in the seventy-seventh parallel, is during the summer almost free from ice, whilst the east coast of Greenland, in the latitude of Bergen, is blockaded with drift-ice, and its glaciers protrude into the sea, it appears hardly necessary to invoke a change in the earth's axis to account for a glacial epoch having existed in Great Britain.

On the 28th June, a month after leaving Portsmouth, we sighted the coast of Greenland, somewhere about the vicinity of Cape Desolation, and for the next few days continued our course along its shores, keeping just outside of the drift-ice from the east coast. Whenever we neared the shore, Kittiwakes, Arctic Terns, and Iceland Gulls were numerous, and Seals were common on the drift-ice. In lat. 62° N. we observed a single Walrus. A Fulmar captured at this time had its stomach filled with the horny mandibles of a small cephalapod.

On one occasion we dredged, in thirty fathoms, on a bank lying about lat. 65° N., off the district of Godtshaab. When the dredge was hauled on board it was half full of gravel and pebbles, no doubt left on the bank by the grounding and decaying icebergs: the majority of the pebbles brought up were gneiss and granite, more sparingly pieces of basalt. The swabs attached to the dredge were full of Asteroids and Ophiurians—*Asteracanthion polaris*, *Solaster endeca*, *Ophioglypha robusta*, *O. Stuwitzii*, and *Ophiopholis bellis* being represented in the haul. Inside of the net were six large Holothurians, *Cucumaria frondosa*, and a few Mollusca, chiefly *Buccinium*, *Natica*, *Astarte*, and *Saxicava*.

As a rule, we passed along the Greenland coast at too great a distance to obtain any accurate idea of its formation. All that we could observe was the peaked and ragged outline of the mountainous islands that fringe the mainland. At times, looking up some fiord, we caught a glimpse of the great *mer-de-glace* of the interior. On one or two occasions, as we neared the coast, under sail, we obtained better opportunities of gratifying our curiosity in regard to this most interesting land.* Early on the 4th July, the date on which the Arctic Circle was crossed, we ran in shore not far from Sukkertoppen. The superb colouring of an Arctic summer night was on this occasion displayed to its fullest extent. When the sun reached its lowest declination, the heavens were tinted gold and amber, and for a couple of hours we witnessed a glorious sunset passing into a still more brilliant sunrise. The mountains, previously shrouded in mist and gloom, completely changed their appearance; their snowy summits were suffused with a warm orange glow, deep purple shades climbed up the slopes, clothing each ravine and precipice with rich shades of colour, and hanging like a warm-tinted curtain across the valleys leading into the interior; beyond all, almost hidden in a veil of neutral tint, the line of the "inland ice" cut the horizon.

On this occasion a small whale, which I believe to have been the Common Beaked Whale, *Hyperoodon rostratus*, was blowing near the ship. Each emission of breath was accompanied by a stentorian grunt, which closely resembled that of the elephant. This small whale was accompanied by a flock of thirty or forty

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* It being quite beyond the compass of these notes to attempt to do more than record personal experiences, the reader, if inclined to obtain an insight into the physical structure of Danish Greenland, must consult the works of the standard authorities on the subject, namely, those of Dr. Rink and Dr. Robert Brown.

Kittiwakes, who settled in its wake, and whenever the animal disturbed the water in its ascent or descent these birds flocked to the spot, and were busily employed in feeding. Doubtless the agitation of the water brought the fish to the surface.

On the 5th July we were off Rifkol Island, in the district of Egedesminde, the high land of the island of Disco coming in view. During the last century this portion of Davis Strait afforded a lucrative fishing-ground for the true whale, *Balæna mysticetus*. The *mysticetus* is now a comparatively scarce visitor to those shores, the and fishery has declined so greatly that only from the settlement of Holstenberg do the Greenlanders now-a-days continue the pursuit, and during a long period it has averaged but one "fish" each season. The ice-quarter-masters on board our vessels being experienced whalers from the Scotch ports, and having "fished" for many years in the Greenland Sea, Davis Strait, Baffin Sea, and to the west of Lancaster Sound, gave me much interesting information in regard to the natural history of the true whale. Like most of the Cetacea, as far as has been observed, these animals couple in an upright position. One of our ice-quartermasters assured me that he once observed a pair of true whales in this position with their tails only above water. Captain Markham informed me that when in pursuit of Narwhals in Lancaster Sound a pair were observed in an upright position. On striking the female, which was secured, the harpoon passed into the male, which finally made good his escape, though severely wounded.

Early in the morning of the 6th July we made the south-west of Disco Island under sail. Then we steamed along its southern shore, passing under the lofty mural cliffs of Uvfak; its basalt beds appeared very horizontal, and the general appearance of the cliffs greatly reminded me of the Færoe Islands. Hundreds of icebergs, chiefly discharged from Jakobshavn ice-fiord, were scattered over the surface of Disco Bay. It was a scene of great beauty: an unclouded sky, a perfectly smooth sea, with the strange surroundings of the enormous icebergs. Animal life was not wanting, hundreds of Iceland Gulls and Fulmars perched on the bergs, flocks of Common and King Eiders flew past us every few minutes, whilst Black Guillemots, the "dovekie" of Arctic navigators, paddled away from the approaching ship.

(To be continued.)

REPORT OF THE CLOSE-TIME COMMITTEE OF THE BRITISH ASSOCIATION, DUBLIN, 1878.

[The following Report has been presented to the British Association by the Close-Time Committee.]

It is with regret that your Committee has to report that, for the first time since its original appointment in August, 1868, the work it has not unsuccessfully had in hand has been brought in question, and this in a way which requires serious attention on the part of all who wish to preserve our indigenous animals from the extermination that, until the last few years, was threatening so many of them.

In July, 1877, it having been reported to Her Majesty's Secretary of State for the Home Department that "the herring fishery on the coast of Scotland is in an unsatisfactory state, and that it is desirable that inquiries should be made to ascertain whether any legislative regulations would tend to promote the welfare of the fishermen engaged in the said fishery, and to increase the supply of herrings for the benefit of the public," that gentleman appointed Mr. Buckland, Mr. Spencer Walpole, and Mr. Archibald Young to be Commissioners to make such inquiries and to report to him the result thereof.

In accordance therewith, the Commissioners above-named reported to the Home Secretary, under date March 1, 1878, and their 'Report,' with 'Appendices,' was subsequently presented to both Houses of Parliament by command of Her Majesty.

This 'Report,' containing certain conclusions arrived at by the Commissioners, naturally attracted the notice of your Committee, and, after due consideration, it was resolved that a letter should be addressed on behalf of your Committee to the Home Secretary in regard to some of those conclusions.

The following is a copy of the letter thereupon sent:—

"*To the Right Honourable R. A. Cross, H.M. Principal Secretary of State for the Home Department.*

6, Tenterden Street, Hanover Square, W., London, July 6, 1878.

"Sir,—The Committee of the British Association for the Advancement of Science, appointed for the purpose of inquiring into the possibility of establishing a close time for indigenous animals, having had under their consideration the Report on the Herring Fisheries of Scotland, dated 1st March, 1878, and the conclusions at which the Commissioners have arrived (pp. 35 and 36 of that Report), beg leave respectfully to submit to your consideration the following observations, *viz.*:—

"I. That conclusions Nos. 2 and 3 of the Commissioners, *viz.*, that 'Legislation in past periods has had no appreciable effect,' and that 'Nothing that man has yet done, and nothing that man is likely to do, has diminished, or is likely to diminish, the general stock of herrings in the sea,' if correct, are absolutely contradicted by conclusion No. 13, which recommends that 'The Sea-Birds Preservation Act, protecting Gannets and other predacious birds which cause a vast annual destruction of herrings, should be repealed in so far as it applies to Scotland.'

"II. That conclusion No. 1, stating that 'The herring fishery on the coast of Scotland as a whole has increased and is increasing,' clearly shows that there can be no necessity for the step recommended in conclusion No. 13 as above cited.

"III. That conclusion No. 13 seems to have been arrived at from exaggerated or incorrect information, as will appear from the following considerations:—The number of Gannets on Ailsa is estimated (Report, p. xi.) at 10,000, and a yearly consumption of 21,600,000 herrings is assigned to them; while the Commissioners assume that there are 'fifty Gannets in the rest of Scotland for every one on Ailsa,' and on that assumption declare that the total destruction of herrings by Scottish Gannets is more than 1,110,000,000 per annum. This is evidently a miscalculation; for, on the premisses, this last number should be 1,101,600,000, a difference of more than eight millions.

"But, more than this, supposing the figures at the outset are right, it appears to the Close-Time Committee that the succeeding assumption of the Commissioners must be altogether wrong; at any rate, there is no evidence adduced in its support, and some that is contradictory of it.

"The number of breeding places of the Gannet in the Scottish seas has long been known to be five only, as indeed is admitted by one of the Commissioners (Appendix No. 2, p. 171); and the evidence of Captain M'Donald, which is quoted in a note to the same passage, while estimating the Ailsa Gannets at 12,000 in 1869 (not 1859 as printed), puts the whole number of Scottish Gannets at 324,000 instead of 510,000, which there would be at the rate of fifty in the rest of Scotland for one on Ailsa, according to the Commissioners' assumption.

"Moreover, 50,000 of these 324,000 birds, or nearly one-sixth, are admitted by this same Commissioner to be 'of great value to the inhabitants' of St. Kilda, and indeed they are of far greater value to them than any number of herrings, since it is perfectly well known that the people of St. Kilda could hardly live without their birds; therefore, this 50,000 must be omitted from any estimate of detriment. Deducting, then, 50,000 from Capt. M'Donald's 324,000, we have 274,000, and these, at the Commissioners' estimate, would consume 600,000,000 herrings, instead of the 1,110,000,000 alleged by the Report, and, therefore, nearly two hundred millions fewer than the Commissioners' estimate of the annual take of the Scottish fisheries (800 millions)—twenty-five per cent. less instead of thirty-seven per cent. more.

"Hitherto the supposition of the Report, that the Gannets frequent the Scottish seas ali the year round, has been followed; but the Close-Time Committee begs leave to observe that, as a matter of fact, these birds are not there in force for more than half the year.

"This, then, will require another abatement to be made. Not to exaggerate the case, the Committee assumes them to frequent these waters seven months or seven-twelfths of a year. This will make their annual capture of herrings 350,350,000, instead of the more than 1,110,000,000 of the Commissioners, being 700,000,000, or much less than one-third, fewer.

"IV. That in all the evidence received and published by the Commissioners only two witnesses allege that any harm has resulted to the fisheries from the Sea-Birds Protection Act. Of these the first, Robert M'Connell, presented a petition from the fishermen of Girvan, in which it is stated (p. 145) that 'no legislation is called for or required;' while another witness from the same place, John Melville (a fishery officer), declares (at p. 146) that 'The fishery has very much increased this last year. Recent years have also shown a gradual increase. The increase is partly due to the increased machinery, and partly to the increase in the number of herrings.'

"The second witness unfavourable to the Act, John M'William (an Inspector of Poor), speaks (pp. 147–49) only from a personal knowledge acquired between 1833 and 1853, when he ceased to be a fisherman, and not from any recent experience. He can therefere scarcely be held competent to give an opinion of his own as to whether the Sea-Birds Protection Act (passed in 1869) has injured the fisheries. Another witness recommends the repeal of this Act; but he, Hugh MacLachlan, expressly states (p. 143) that he 'thinks the cause of the decrease [in the numbers of herrings taken] is the catching immature fish;' and the remedy he proposes is the adoption of a strict close time.

"V. That, on the other hand, the utility of sea-birds in pointing out the situation of shoals of herrings and other fish is not only generally notorious, but is even admitted in the Report (pp. 57 and 175).

"VI. That if the Sea-Birds Act be repealed on the grounds alleged for Scotland, its repeal for England and Ireland must logically follow; and this Committee trusts that no step may be taken to repeal the Act for Scotland.

"I am, Sir, yours obediently,

"H. E. Dresser,
Sec. to the Brit. Assoc. Close-Time Committee."

To this letter the following reply has been received:—

Whitehall, July 12, 1878.

"SIR,—I am directed by the Secretary of State to acknowledge the receipt of your letter of the 6th inst., submitting observations on behalf of the Committee of the British Association for the Advancement of Science on the Report of the Commissioners appointed to inquire into the herring fisheries of Scotland, dated the 1st March last.

"I am, Sir, your obedient servant,
(Signed) GODFREY LUSHINGTON.

"H. E. Dresser, Esq.,
6, Tenterden Street, Hanover Square, W."

Your Committee conceives that the points at issue between it and the Scottish Herring Fishery Commissioners are thus fairly stated, and is confident that all unbiassed persons will admit that those Commissioners have overstated their case. Your Committee would further remark that, though the Sea-Birds Preservation Act contains a provision (in section 3) for varying the close time therein enacted on due application, no such application appears ever to have been made on the ground of detriment to the herring fisheries caused by sea-birds; while there can be no reasonable doubt that any application for shortening the close time on that ground, if duly made, would be granted—circumstances which would seem to show that the conclusions of the Commissioners were not generally shared by those interested in the fisheries. On the other hand, your Committee may refer to the fact, already mentioned in former Reports, that several applications have been made for prolonging the existence of the close time.

With regard to the Wildfowl Preservation Act, your Committee has to report that the discontent caused by its establishing a close time different from that which was originally proposed by your Committee still exists in some quarters, but that the power of variation the Act contains has been put in force in many counties; and your Committee trusts that when this power has been still further exercised, as it doubtless will be, and the Act practically brought into accordance with your Committee's first proposal, of which there are many indications, dissatisfaction will be reduced to a *minimum*, or will altogether cease.

A Bill for the Protection of Freshwater Fish has been introduced into Parliament during the present session, and will doubtless receive the royal assent. It has not, however, been of a kind that needed any action on the part of your Committee.

In view of any proceedings which may be taken in the session of 1879 in regard to the recommendations of the Scottish Herring Fishery Commissioners already recited, as well as on general grounds, your Committee respectfully urges its reappointment.

THE MAMMALS OF SHAKSPEARE.

By Henry Reeks, F.L.S., F.Z.S.

(Concluded from p. 249.)

The Rhinoceros, *Rhinoceros* ———.

Once only does Shakspeare mention the Rhinoceros, and then apparently only for the purpose of illustrating a most formidable opponent, for Macbeth, speaking to the ghost of Banquo, exclaims—

> "What man dare, I dare:
> Approach thou like the rugged Russian bear,
> The arm'd *rhinoceros*, or the Hyrcan tiger;
> Take any shape but that, and my firm nerves
> Shall never tremble."
>
> *Macbeth.* Act iii., Scene 4.

The Wild Boar, *Sus scrofa.*

Until the extinction of the wild boar in Britain, probably during the seventeenth century, boar-hunting was considered royal sport. From the spirited descriptions given by Shakspeare (who mentions the wild boar upwards of thirty times), it would appear that the poet had himself joined in the chase:—

> "'Thou hadst been gone,' quoth she, 'sweet boy, 'ere this,
> But that thou told'st me thou would'st hunt the *boar.*
> O be advis'd; thou know'st not what it is
> With javelin's point a churlish swine to gore,
> Whose tushes never sheathed he whetteth still,
> Like to a mortal butcher bent to kill.'"
>
> *Venus and Adonis.* Stanza 103.

The flesh of wild boars was considered a great delicacy, and, from the difficulty of procuring it, an expensive dish. Can we wonder, then, at the astonishment of Mecænas, when informed of the sumptuous manner in which Cæsar was entertained by the Queen of Sheba? Well may he repeat the query—

> "Eight *wild boars* roasted whole at a breakfast, and but twelve persons there: is this true?"
>
> *Antony and Cleopatra.* Act ii., Scene 2.

A favourite West Indian dish is a wild boar "barbecue'd," *i.e.* roasted whole, stuffed with spice, and basted with wine—generally Madeira! Pope thus describes a glutton that had ruined himself by indulging in such expensive luxuries:—

> "Oldfield, with more than harpy throat endue'd,
> Cries, 'Send me, ye gods, a whole hog barbecue'd.'"

THE CAMEL, *Camelus arabicus.*

The Camel is mentioned some half-dozen times. In *Richard II.*, Act v., Scene 5; *Troilus and Cressida*, Act i., Scene 2.

THE STAG, *Cervus elaphus.*
THE FALLOW DEER, *Dama vulgaris.*
THE ROEBUCK, *Capreolus capræa.*

Deer-hunting is repeatedly mentioned by Shakspeare, who, had he not been a thorough sportsman himself, could not have been better informed of the terms used in venery.

> FALSTAFF. "Divide me like a bribed buck, each a haunch; I will keep my sides to myself, my shoulders for the fellow of this walk, and my horns I bequeath to your husbands."—*Merry Wives of Windsor*, Act v., Scene 5.

I have quoted the above in preference to innumerable other references, for the purpose of ascertaining the derivation of the word "bribed" as applied to the quartering of a buck. I have consulted some few works which are at hand, such as Osbaldiston's 'Sportsman's Dictionary,' Sullivan's 'Dictionary of Derivations,' &c., but can find no allusion to the word used in that sense. Perhaps the readers of 'The Zoologist' will kindly help me.

THE BISON, *Bison* ———.

Occurs only once, and then as an adjective (*Coriolanus*, Act ii., Scene 1). The Bison, which was once very common in many parts of Europe, is now, according to Mr. A. R. Wallace, confined to limited areas in Poland and the Caucasus; whether it occurs south of the latter range of mountains—*i.e.* in the Mediterranean subregion—I am unable to say.

THE ELEPHANT, *Elephas* ———.

The Elephant is mentioned three times in *Troilus and Cressida* as an adjective or epithet, and once in *Julius Cæsar*, Act ii., Scene 1.

ULYSSES. "The *elephant* hath joints, but none for courtesy: his legs are legs for necessity, not for flexure."—*Troilus and Cressida*, Act ii., Scene 3.

THE RAT, *Mus rattus*.

In all probability the only rat known to Shakspeare was the old English Black Rat, now nearly if not quite extinct. It is frequently alluded to in the plays. King Lear pathetically exclaims:—

"Why should a dog, a horse, a *rat*, have life,
And thou no breath at all?"
King Lear. Act v., Scene 3.

THE MOUSE, *Mus musculus*.

The Common Mouse and Field Mice are repeatedly mentioned by Shakspeare.

"Look, look, a *mouse!*
Peace, peace;—this piece of toasted cheese will do 't."
King Lear. Act iv., Scene 6.

THE DORMOUSE, *Mus avellanarius*,

Occurs only once, as an adjective—*viz.* in *Twelfth Night*, Act iii., Scene 2—

FABIAN. "She did show favour to the youth in your sight only to exasperate you, to awake your *dormouse* courage, to put fire in your heart, and brimstone in your liver."

THE SQUIRREL, *Sciurus europæus*.

Titana says:—

"I have a venturous fairy that shall seek
The *squirrel's* hoard, and fetch thee new nuts."

Mercutio, speaking of the fairy Queen Mab, describes—

"Her chariot is an empty hazel-nut
Made by the joiner *squirrel*."

THE PORCUPINE, *Hystrix cristata.*

In *Hamlet*, Act i., Scene 5, occurs the oft-quoted line—

> " Like quills upon the fretful *porcupine*."

The Duke of York, speaking of the rebel Jack Cade, remarks—

> " In Ireland have I seen this stubborn Cade
> Oppose himself against a troop of Kernes;
> And fought so long, till that his thighs with darts
> Were almost like a sharp-quill'd *porcupine*."

THE HARE, *Lepus timidus.*

Even in Shakspeare's day coursing appears to have been a popular amusement. In the amusing farce with the drunken tinker, a servant asks—

> " Say thou wilt course: thy greyhounds are as swift
> As breathèd stags, ay, fleeter than the roe."
> *Taming of the Shrew.* Induction, Scene 2.

> "If I fly, Marcius,
> Halloo me like a *hare*."
> *Coriolanus.* Act i., Scene 8.

THE RABBIT, *Lepus cuniculus.*

With our mischievous little friend the Rabbit we conclude our notes on " The Mammals of Shakspeare," merely quoting a remark of the much-abused but amusing Falstaff—

> " Depose me? if thou dost it half so gravely, so majestically, both in word and matter, hang me up by the heels for a *rabbit*-sucker."
> *Henry IV.* Part I., Act ii., Scene 4.

In the foregoing brief notes mention has been made of forty-one animals—*fere naturæ.* The allusions made to them by Shakspeare, although in many cases almost trivial in their nature, exhibit nevertheless an acquaintance with many peculiarities of haunt and habit which, as regards the indigenous animals, could only have been acquired by close observation in the woods and fields. In regard to the species which he would not be likely to meet with in this country, reading and memory evidently served him in good stead.

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PROVINCIAL NAMES OF BRITISH ANIMALS.

Scotland.—On looking through the lists of provincial names of animals given for various counties of England in the last number of 'The Zoologist' (pp. 287—292), it occurred to me that a comparison with Scotch local names might prove of interest. I am preparing county lists of local names in Scotland with a view to publication, and for purposes of comparison, and in an article—which is almost ready for press—upon the Natural-History notes in the 'Old Statistical Account of Scotland,' I have noticed the older Scotch names of quadrupeds and birds therein given. Meanwhile I will give such of the provincial names mentioned in the last number of 'The Zoologist' as are in use in Scotland:—

Badger. *Brock.*
This name is still used, but only very locally. It is to be found, however, constantly appearing in the names of places in Scotland where the animal was at one time more abundant than it is now. Thus, "Broc-làn" (*i. e.* full of badgers), the name of a farm in Perthshire.*

Fieldfare. *Storm-bird.*
In many parts of Scotland this name, or "Storm-cock," is applied to the Missel Thrush; but it has doubless originated in error, as we also find in Scotland that the term "Felti" or "Feltiflyer" is applied in like manner to both species. The first appearance of Fieldfares in Scotland is held to predict a storm; whence the name, which has come to be applied also to the Missel Thrush.

Redstart. The name "Fire-tail" is also applied in Stirlingshire.

Stonechat. *Stone-chuck.*
Our form is "Stonechacker" or "Stonechatter"; but this name is more generally applied in Scotland to the Wheatear.

Nightjar. *Night-hawk.*
This name is also in common use in Scotland.

Lapwing. *Pee-weep.*
Our form is "Peesweep."

Oystercatcher. *Sea-pie* or *Sea-piet.*

Whimbrel. *May-bird.*
This name is universally applied throughout the Long Island or Outer Hebrides, and in many other parts of the West of Scotland.

Common Sandpiper. *Summer Snipe.*
The name "Summer Snipe" is applied in Scotland usually to the Common Sandpiper, as is also another less elegant epithet, descriptive of a well-known habit usually observable when the bird, on being suddenly disturbed, takes flight.

Gull. *Maw; Sea Maw.*
The Glaucous Gull is "Golden Maw."

Song Thrush. *Mavie* in Scotland.

Greenfinch. *Green Lintie.*

Dipper. *Water Craw.*

Goldfinch. *Flinch.*
In Scotland "Goldflinch." I do not know of any other finches in Scotland, except the Bulfinch, which has an *l* inserted in the local name, as above.

Rook. *Craw* universally in South and central districts of Scotland.

Ring Dove or "Cushat." *Cushie* or *Cushie-doo* in Scotland.

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* 'Old Statistical Account of Scotland,' vol. xi. (1794), p. 615.

Lapwing. *Tuet.*
In Fife and Forfar an almost similar name—viz. "Tuchet" (pronounced "Tyuchet")—is applied to this species.
Heron. *Crane* in Scotland.
Blackbird. *Blackie* and *Blackie-bird* in Scotland.
Bulfinch. *Bullie.*
This name is applied here to the Bulfinch, and not to the Chaffinch as in Yorkshire (p. 292).
Whitethroat. *Nettle-creeper.*
I have heard this name applied in Midlothian, but cannot feel sure whether it was by a native.

In the preparation of my county lists of local names in Scotland I shall be glad of any assistance from brother naturalists.—J. A. HARVIE BROWN (Dunipace House, Larbert, N. B.).

Yorkshire.—In the district of Cleveland, more especially in the Dales, twelve miles west of Whitby, ten east of Stokesley, and nine south-east of Guisborough, the following names are in use:—

Stoat. *Clubster.*
Weasel. *Ressela* or *Rezzela.*
Shrew. *Blead-mouse.*
Badger. *Brock* (disused).
Bat. *Flitter-mouse; Back-bearaway.*
Rat. *Ratton.*
Barn Owl. *Church Owl.*
Brown Owl. *Hoot Owl; Wood Owl.*
Missel Thrush. *May Thrush.*
Song Thrush. *Throstle.*
Fieldfare. *Felfer.*
Blackbird. *Black Uzzel.*
Ring Ouzel. *Ring Uzzel; Moor Blackbird.*
Water Ouzel. *Dipper.*
Redstart. *Fire-tail; Red-tail.*
Stonechat. *Stone-chack; Stone-chacker.*
Whinchat. *Whinchacker.*
Willow Wren. *Mealy-mouth.*
Common Wren. *Tom Tit.*
Blue Tit. *Jenny Wren.*
Pied Wagtail. *Dish-washer.*
Reed Bunting. *Blackcap.*
Chaffinch. *Bull-spink.*
Yellowhammer. *Goldie.*
Greenfinch. *Green Linnet.*
Hooded Crow. *Dun Crow; Norway Crow.*
Carrion Crow. *Ger-crow; Doup.*
Rook. *Craw; Saddleback.*
Magpie. *Nanpie.*
Starling. *Shep-starling; Shepstare.*
Swift. *Devil-shrieker.*
Sand Martin. *Bank Swallow.*
Martin. *Eaves* or *Easin Swallow.*
Ring Dove. *Cooscot; Cushat.*
Lapwing. *Peewit; Tufit* (pronounced "Teeafit").
Heron. *Hernseu; Crane.*
Titlark. *Moor-titling; Moor-tahling.*
Corn Crake. *Craker.*
Hedgesparrow. *Cuddy; Shufflewings.*
Sandpiper. *Summer Snipe.*
Newt. *Ask; Esk; Hask.*
Viper. *Hagworm.*
Snake. *Grass Snake.*
Toad. *Tade.*
Dragon-fly. *Fleeing Ask* or *Esk; Fleeing Aither, Edder,* or *Nedder.*
Blue-bottle Fly. *Flesh-fly.*
Black-beetle. *Black-clock.*
Water-beetle. *Water-clock.*
Ladybird. *Lady-clock.*

Back-bearaway. The first part of this name is the Old English *Bakke* met with in Prompt. Parv.; *c.f.* Old Swedish *Natt-backa*; Danish *Aften-bakke.* The "bearaway" I cannot explain.

Clubster. Compare the Lancashire "clubtail."*

* It is probable that the Norfolk "lobster," mentioned in Mr. Gurney's list (p. 287), is a corruption of "clubster."—ED.

Mealy-mouth and the interchange of the names for the Common Wren and Tomtit are curious, and do not admit of any easily-found explanation.

Tufit for the Peewit or Lapwing deserves comparison with the Danish *Tyvit.* I believe the words are coincident. The form "teeafit" is merely the result of vernacular pronunciation, analogous to "scheeal" for school, "feeal" for fool, &c. In the same way, I believe, "tahling" or "tarling," in the name for the Titlark, is merely the slurred pronunciation of "Titling."

Cuddy. Why the Hedgesparrow and the donkey should both be rechristened after St. Cuthbert is hard to say; but so it is. The name "shufflewings" speaks for itself.

Ask or *esk* is due to what in its Gaelic form is *asc; c.f.* Anglo-Saxon *athexe;* German *eidechse.* "Fleeing-ask," bearing in mind that many still hold the newt—and the dragonfly, too—to be venomous, explains itself. "Fleeing-nedder" or "ether" is simply "flying-adder," and equally explains itself.

Hagworm is the Cleveland form of Danish *Hugorm;* Swedish *Huggorm;* Old Norwegian *Höggormv;* the snake that strikes or wounds.

Clock for beetle is Old Norwegian, and may be compared with Old German *Chuleich.*—J. C. Atkinson (Danby, Yarm).

Yorkshire, West Riding.—The following are some of the local names used for birds in this part of the West Riding of Yorkshire. —G. T. Porritt (Highroyd House, Huddersfield).

Kestrel. *Standhawk.*
Missel Thrush. *Storm-cock.*
Fieldfare. *Felfer.*
Song Thrush. *Throstle.*
Hedgesparrow. *Dunnock.*
Sedge Warbler. *Willow Wren.*
Garden Warbler and Whitethroat. *Small-straw.*
Willow Warbler. *Peggy* and *Featherpoke.*
These names also apply to the Chiffchaff.
Great Tit. *Oxeye* and *Blackcap.*
Blue Tit. *Tomtit* and *Bluecap.*
Long-tailed Tit. *Bottle Tit.*
Meadow Pipit. *Titlark.*
Yellowhammer. *Yoldring.*
Chaffinch. *Spink.*
Greenfinch. *Green Linnet.*
Common Linnet. *Brown, Red,* or *Grey Linnet.*
Lesser Redpoll. *Chevy* or *Red Linnet.*
Starling. *Shepster.*
Rook. *Crow.*
Magpie. *Pianet.*
Wren. *Jenny Wren.*
Martin. *Swallow.*
Lapwing. *Peewit.*
Landrail. *Corn-crake* or *Grass-drake.*
Moorhen. *Waterhen.*

Lancashire.—I have noted the following list of names as being in use in this part of Lancashire:—

Thrush. *Throstle; Mavis.*
The latter term is rare.
Fieldfare. *Felfar; Blueback.*
The Missel Thrush seems to be usually confounded with this bird, but is sometimes designated as "Chercock."
Hedgesparrow. *Dykie* or *Dykie-sparrow.*
Whinchat. *Whincheck.*
Wheateur. *Stonecheck.*
Wren. *Chitty.*
Meadow Pipit. *Titlark.*
Chaffinch. *Spink.*
Goldfinch. *Flinch.*
Linnet. *Grey Linnet.*
Greenfinch. *Green Linnet.*
Yellowhammer. *Bessie.*
Starling. *Shepster.*
Crow and Rook. *Craw.*
Magpie. *Piet; Maggie.*
Swift. *Devilin.*
Nightjar. *Night-hawk.*
Lapwing. *Tenit.*
Ringed Plover. *Grundling.*
Oystercatcher. *Sea-pie.*
Sandpiper. *Dicky-di-dee.*
Dunlin. *Sea-mouse.*
Heron. *Crane.*
Sheldrake. *Shellduck.*
Wild Duck. *Grey Duck.*
Scoter. *Douker.*
Tern (including Common, Arctic and Sandwich). *Sparling.*
Lesser Tern. The eggs and young of this species are invariably alluded to by the natives as those of "Sea-mice." The bird itself is included under the head of "Sparling."
Gull. *Sea Maw.*
This term seems to be applied to all species, but more especially to the Black-headed Gull, which abounds in this neighbourhood.
Cormorant. *Scarth.*

Some of these names, to which I have previously alluded, in 'The Zoologist' for July, 1877, are, I believe, peculiar to Walney Island. The mixed nature of the population—being chiefly composed of immigrants from other parts—in this locality renders it a somewhat difficult task to decide what are really the native names of the various birds. I can safely say, however, that all the terms given above are employed to a greater or lesser extent, and would probably be understood by the country people in the neighbourhood, to whom the ordinary English name would be unknown.—W. ARTHUR DURNFORD (Barrow-in-Furness, Lancashire).

North Lancashire.—The following local names are in ordinary use here.—EDWARD T. BALDWIN (Woodcroft, Ulverston).

Thrush. *Throstle.*
Starling. *Shepster.*
Heron. *Crane.*
Lapwing. *Tewit.*
Scoter. *Doucker.*
Oystercatcher. *Sea-pie.*
Tern. *Sea Swallow.*
Fieldfare. *Fellfar.*
Mole. *Moudiwarp.*
Polecat. *Foumart.*
Marten. *Sweet Mart* or *Mart.*
Common Snake. *Hag-worm.*
Wasp. *Waup.*

Essex.—I have met with the following local names for birds when wildfowl shooting at Leigh, Essex.—A. H. SMEE (7, Finsbury Circus).

Godwit.	*Prine.*
Oystercatcher.	*Olive.*
Knot.	*Male.*
Scaup and Pochard.	*Dunbird.*
Redshank.	*Tuke.*
Dunlin.	*Oxbird.*
Brent Goose.	*Black Goose.*
Bernicle Goose.	*Bar-goose.*
Sheldrake.	*Bar-gander.*
Black-backed Gull.	*Saddle-back.*
Scoter.	*Black Duck.*
Gadwall.	*Sand Wigeon.*

West Cornwall.—I add the local names of some of our mammals, birds, &c., in West Cornwall:—

Badger.	*The Grey.*[*]
Mole.	*Wunt* or *Want.*
Short-eared Owl.	*Woodcock Owl.* Around Dartmoor, in Devonshire, the "Red Owl."
Missel Thrush.	*Home-screech.*
Song Thrush.	*Grey-bird.*
Fieldfare.	*Blue-bird.*
Redwing.	*Winnard.*
Wheatear.	*Wittol*; *Whitass.*[†]
Starling.	*Stare.*
Hedgesparrow.	*Spawe.*
The Tits (all except the Long-tailed Tit).	*Pridden-prâl.*[‡] On Dartmoor these birds are called "Heckymals."
Yellowhammer.	*Gladdy.*
Pied Wagtail.	*Water Wagtail; Dish-washer; Dish-lick.*
Chaffinch.	*Copperfinch.*
Bulfinch.	*Hoop* (very rare).
Kestrel.	*Windhover.*
Nightjar.	*Dorhawk; Goatsucker*, *Night-hawk.*
Jay.	*Jay-pie* (rare).
Lapwing.	*Peewit.*
Hooded Crow.	*Marazion* (or *Market Jew*) *Crow.*
Oystercatcher.	*Sea-pie; Sea Magpie.*
Little Grebe.	*Dabchick.*
Guillemot.	Is, I believe, *The Murre.*
Lizards and Newts.	*Padzypows.*[§]
Small Frogs.	*Quilkin.*
Blindworm.	*Long-cripple.* On Dartmoor the Common Snake is the "Long-cripple," and the large Dragonfly is the "Long-cripple's Horse."

Insects, crustaceans, and fish open a wide field in this direction of local names. Of the snails the shelled ones are with us "Jeanyakes" (an old Cornish name which has survived, but with a lost derivation), and the unshelled are "Malwidzharns," said to mean the naked garden thief. "Dzharn," of course, is garden, but I cannot make out the "Malwi." It is not, however, improbable that it is of the oldest of Old Cornish, at which our dictionaries do not much help us.—Thomas Cornish (Prussia Cove, Marazion, Penzance).

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[*] There is a large family or little clan of people in this neighbourhood whose nickname is "Badger." They are a pugnacious lot, and will never themselves use this word "grey," nor permit it to be used with impunity in their presence. If they want to express the colour grey they use the word "blue."

[†] These two names suggest a derivation of the word "Wheatear." The bird takes its name from its white rump (*White-tail = Wittol*), and hence the second name above given, softened into Whitear or Wheatear.

[‡] Old Cornish, which translated literally means "Tree Babbler."

[§] From *pedzhar* or *peskwar*, old Cornish for "four," and *pow*, old Cornish for "foot."

Bucks and Berks.—I have heard the following local names of animals used in the Thames Valley, on the borders of Bucks and Berks:—

Bat. The larger species, *Rat-bat*; the smaller, *Mouse-bat*.
Sparrowhawk. *Blue-hawk*.
By this term the Sparrowhawk is probably always meant about here, though in Scotland the term is, I believe, generally applied to Harriers.
Fieldfare. *Pigeon Felt*.
Thrush. *Thrusher*.
Wagtail. *Dish-washer*.
Long-tailed Tit. *Bottle-tit*.
Swift. *Devil*.
Heron. *Moll-heron*.
Sandpiper. *Summer Snipe*.
Little Grebe. *Dabchick; Dabber*.
Tern. *Sea-swallow*.
Wryneck. *Cuckoo's Mate*; *Nile-bird*.
About two springs ago I was told by one of our garden labourers that he had that morning seen a "Nile-bird" about in the garden, which a little cross-examination proved to be the "Cuckoo's Mate," but whether the term is in common use locally I do not know.
Newt. *Effett*.
Lizard. *Land Effett*.
Bleak. *Taylor*.
Miller's-thumb. *Todpole*.
In distinction, apparently, to the genuine Tadpole.

I have also heard the Polecat, in West Cornwall, called "fitchew"; the Stoat, in Oxfordshire, called "royal hunter"; the Wood Owl, in Sussex, called "'ollering owl," from its cry. One bird—almost, if not quite, over the whole of the British Islands—changes its name according to the season of the year. People speak throughout the spring of hearing the "Corn Crake"; whereas in the shooting-season anyone lucky enough to be able to include one in his day's bag, almost invariably mentions it as a "Land-rail."—Alfred H. Cocks (Great Marlow, Bucks).

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OCCASIONAL NOTES.

Gazelle-hawking in Egypt.—Whatever doubts might have existed in the minds of the incredulous as to the ability of a hawk to capture so large a quarry as a Gazelle, they were effectually dispelled when Captain Burton published his 'Falconry in the Valley of the Indus;' and the frontispiece to this book, one of the most spirited and life-like drawings ever furnished by the pencil of Joseph Wolf, depicts a female Goshawk with uplifted wings grasping the head and face of a Gazelle, which she is pulling down in a perfect cloud of dust. It is unnecessary here to criticise this book further than to observe that considering the author did not profess to be either a naturalist or a falconer, and merely related what he had seen, he has made singularly few mistakes in dealing with a very technical subject. For the present purpose it suffices to remind the reader that Captain Burton has described Gazelle-hawking in the Valley of the Indus, where the hawk employed for the purpose is the Goshawk. A near approach to the quarry is made either by stalking or by rapid riding under cover of some kind, and the Goshawk is flown from the hand at a comparatively short distance from its prey. Those who are acquainted with the habits of the Goshawk know that on quitting the hand it flies directly at the quarry in a straight line, and does not mount to a height and "stoop," like a falcon or a tiercel. In Egypt, it would seem, a different practice obtains, and a different hawk is employed. The author of 'The Khedive's Egypt,' referring to this mode of capturing the Gazelle (p. 255), thus describes the sport:—"The Syrian Greyhound is a very beautiful specimen of the race; smaller, and with less length of limb than the English Greyhound, and consequently with a shorter stride, the rapidity of his movements and the toughness and tenacity of his muscles, render him no unworthy scion of the stock to which his British cousin belongs. Moreover, his long, feathery, tufted tail seems to act as a rudder to him, when in full flight across those breezy plains—an advantage which marks the difference between the Syrian and other greyhounds, to whom, in other respects, he bears the closest affinity. In the eyes and faces of the choicest specimens of these dogs there shines an expression of winning and almost human intelligence; yet, once launched in pursuit of game, they are as bloodthirsty as the sleuth-hound. The dog in Egypt, as throughout the East, with this exception, is a homeless and houseless vagabond, and semi-savage, prowling in packs, acting as scavenger only, and never domesticated, because considered 'unclean,' by Mussulman law and custom. The Prince Halim had the courage to brave this prejudice, and kept his greyhounds for the chase. But he also kept another and more curious class of creatures for the hunting of the Gazelle, probably the fastest in its movements of any wingless animal, *viz.*, his hunting-hawks, which seemed the genuine descendants of the 'falcon gentle,' which was wont to afford such rare sport to our ancestors in the Middle Ages. * * * * The hawk used for this purpose is not the ordinary large Egyptian one, which hovers over the city of Cairo, poised in air on its wide wings, or circling around in search of quarry, but a smaller and fiercer bird, desert born and bred, with keen eyes and sharp talons, of which the larger brother stands in wholesome awe. These birds, trained much as were the mediæval falcons, seem to love the chase as much as their master, although their quarry be not the Heron, but the Gazelle. Their services were only brought into requisition after the chase had continued some time, and as an adjunct to the pursuit of men, dogs, and horses, all concentrating their energies against the life and liberty of the most lovely, graceful, and inoffensive of wild creatures, almost the sole tenants of these arid waters. After advancing a few miles into the desert, which presents one flat, dead, unbroken level of hard gritty soil (not sand), unrelieved by any shrub, grass, flower, or tree, bounded only by the horizon, and producing almost the illusion of a sea view, suddenly half a dozen slender, shapely forms spring up, and stand in bold relief against the sky, with heads erect, like statuary, some half mile distant. The sight seems at once to infuse new fire and vigour into the horses, dogs, and men, all of whom are immediately launched like thunderbolts in the direction of the quarry, which, pausing motionless for a moment, break into full flight the next, bounding marvellous distances each spring, and soon leaving even the fleet greyhounds toiling hopelessly in the rear; the distance between them visibly increasing, as the tireless Gazelles almost fly forwards, inspired by fear. The scene now becomes most animated, exciting, and picturesque, with the floating burnouses of the Bedouin or Egyptian riders, and the gay attire of horse and man, and the gallant Arab coursers stretching out to full speed with expanded nostrils and protruding eyes, and the feathery tails of the Syrian greyhounds waving like banners as they bound after the flying Gazelles. But vain are the efforts of all their enemies to gain upon, or even to keep pace with, the graceful children of the Desert. Horses, men, and dogs are falling rapidly behind; and even the forms of the Gazelle's are becoming indistinct, and with difficulty discernible, except to the eagle-eyes of the prince and his Bedouins, when a new ally is summoned to the assistance of the hunters, and a new foe launched at the heads of the triumphant fugitives. Rising in his shovel-stirrups, in full career, with the grace and dexterity of an Eastern rider, Prince Halim, slipping off the hood from the head of the hawk he carries on his right hand, with a peculiar shrill cry launches the bird into the air in the direction of the fast disappearing quarry. Thus released, the hawk circles rapidly upward until almost lost to sight, a mere speck suspended in blue ether, and seemingly motionless in the cloudless sky, blazing under the fierce Eastern sun in a flood of light. A moment later the hawk can be seen shooting downwards like a lightning flash on the Gazelle, buffeting its head and blinding its eyes with the rapid blows of its strong wings. Almost frantic with fear and fury the Gazelle soon frees itself from its feathered assailant by striking its head upon the ground, and then resumes its flight; but the relief is only momentary, for the pertinacious assailant as soon as shaken off renews the attack, coming down on the antelope's head again and again, releasing it only long enough to avoid being crushed or impaled upon its sharp brow horns. Blinded at last and wearied by these attacks, confused by the cries of the approaching huntsmen, the terrified and exhausted Gazelle falls an easy prey to the Greyhounds and pursuing horsemen. Sometimes a young or badly-trained bird would fall a victim to his interference; for the efforts of the Gazelle to destroy, as well as to shake off, his tormentors, inspired by the instinct of self-preservation, are often as energetic as piteous to witness." The reader is not told what species of hawk is thus employed, but it is evidently not the Goshawk, for it is described as "circling rapidly upward until almost lost to sight." The flight is that of a falcon; and unless there be some poetic license in the description, which it is difficult to conceive if the author were really an eye-witness of the sport, it must be a falcon of some kind that is used, and a powerful one too. The Peregrine would scarcely be strong enough; it has nothing like the grip of the Goshawk, as I know from having carried both. The Icelander or the Jer-falcon would, in all probability, not be obtainable; the Lanner and the Barbary Falcon would be too small. What, then, is the species?—J. E. Harting.

White Chamois in Switzerland.—In the 'Alpenpost' (No. 2, 1878), is an interesting communication from Dr. Lorenz, of Loire, upon the subject of white chamois. At the opening of the shooting season in September, 1877, a white chamois was shot in the valley of Safien, Canton of the Gresone. It was offered for sale to the cantonal museum for 500 francs (£20.) The directors of the museum refused to purchase it, and it was then sent to Zurich, where it was disposed of. Von Tschudi, in his important work on the "Alps," mentions as a very rare occurrence the fact of a white chamois being killed in 1853 above Sculms, a small village on the Hezenberg, between Bonaduz and Versam, in the Grisons. It was an albino, whose hoofs even were white, and the iris rose-coloured. Its horns were a little more than an inch in length, and but slightly curved. The fur of this animal was very thick and close, particularly about the neck, which was handsomely shaped, the muscles well developed. A second example of this variety was killed in October, 1867, on the Quoentobel (Grisons). About thirty years ago a chamois-hunter of the Linthal shot a white chamois on the Sandalp, but no one was disposed to purchase, and it was not known what became of the skin. Latterly a chamois-hunter of the Grisons declares that last autumn (1877) in the course of one of his many expeditions he saw two white chamois, so that the appearance of that variety is not an occurrence absolutely extraordinary, but except in the case of the one on the Sandalp, it would seem that it is only this one district of the Canton of the Grisons which has the peculiar favour of possessing this rarity. Happily for these interesting animals, this mountain district is strictly preserved. It is probable that the white chamois are always albinos, and consequently constitute an anomaly rather than a species. Nevertheless this question does not appear to be absolutely decided, as it has been in case of hares, for instance. The hare of the plains are sometimes found under the form of the white variety, says Tschudi, but it must not be confounded with that of the white variety of the Alps, because it had the eye rose-coloured like all albinos, and remains white all the year round. The white hare of the Alps, on the contrary, is generally found at an altitude of from 5000 feet to 8000 feet, and is white only in winter, for the colour of its fur only changes with the first severe cold. The points of the ear are the only parts of the skin the fur of which remains dark-coloured, and its eyes, far from being red, are even darker than those of the common hare. In summer the fur is grey with an olive tint mixed with black. The fur on the stomach only remains white, as also does a part of the ear.

Porpoise-Hunting in Norway in Olden Times.—The contemplated activity of the ancient porpoise-hunting guild at Middelfart, in the island of Fühnen, the oldest corporation of this kind in Norway, has led to an interesting correspondence in the 'German Fishery Gazette,' from which it appears that the inhabitants of Middelfart have carried on the sea-hog or porpoise-hunting as far back as the thirteenth century. This is clearly ascertained from old documents of the sixteenth century, indicating that the fishermans' guild of Middelfart had been prosecuting this porpoise-catching for some centuries back. The first statutes of the guild bear the date of the year 1559, being confirmed the same year by a royal decree granting to the inhabitants of Middelfart the exclusive right of porpoise-hunting in the Little Belt. This privilege had to be renewed whenever a new ruler ascended the throne, the fishery being carried on uninterruptedly till more recent times, except during the period of the Anglo-Danish war, when fishing ceased altogether. A reconstruction of the statutes was effected in 1854, receiving the royal assent in the following year, but the hunt has never since succeeded in reaching the same standard of prosperity it enjoyed in former times. The hunt always commenced on the 11th November, and lasted till the 2nd February, all the members of the guild being under the obligation to take part, and disqualified from engaging in any other kind of fishing during the hunting season. The sea-hogs are during this period found proceeding in large shoals backwards and forwards between the East Sea and the Cattegat Straits. The fishermen must manage to drive these shoals into the so-called Gamborgfjord south of Middelfart. The hunt is rather troublesome, and is carried on by twelve boats, each containing three fishermen. The boats, upon the signal being given of a shoal of porpoises being in sight, move a little further out into the sea and then return, driving the whole herd into the little bay, each man vigorously lashing the water with a hazel-rod or a beech-branch, some 10 ft. to 12 ft. in length. The boats then draw gradually closer to the shore, and as soon as the porpoises have been driven into the Gamborgfjord, spread out the largest net—made of common twine, 120 fathoms in length, and with a width of 120 three-inch square meshes—fastened by one end to the shore, the other held by the furthermost boat. The net, kept extended in the middle so as to form a half-circle, is then slowly drawn shorewards. A smaller net, of 60 fathoms length, made of double twisted hemp-lines, is next spread out after the porpoises have entered the shallow water. The shoal being thus caught and too frightened to make any attempt to escape, the fishermen jump from their boats into the shallow water and drag the inner net to the shore, when the killing commences. The men take hold of the porpoises one by one by their broad tail-fins, land, and stab them in the neck with a long-bladed knife, the same as when killing a young pig. Very little grunting is heard, the "swine-fish" not making any resistance. Several shoals are sometimes thus caught in one day. Full-grown species weigh from 50 to 60 lbs., producing 30 lbs. to 35 lbs. fat or lard and 12 quarts of train oil, the refuse making an excellent manure. The sea-hogs, keeping close to the shores when moving, are known to be afraid of a clear gravelly bottom, and prefer turbid water, which makes the Gamborfjord the most suitable spot for this kind of fishing, the bay of the Fjord being narrow, with a bottom of a darkish colour, and everywhere covered with sea-weed, the favourite food of the sea-hogs. These facts account sufficiently for the Middelfart Porpoise Hunting Guild having been enabled to prosecute this pursuit so successfully during so many centuries.

Curious Nesting Freak of the Common Buzzard.—In the beginning of May I was paying a short visit to a friend at Dulverton, our special purpose being to look for nests of the Wood Wren, which is more common there than in any other part of Somerset. We were not, however, very successful; but in the course of our search my friend pointed out a nest of the Common Buzzard, which we had seen last year, and from which he and his sons had then taken three eggs. There was also another nest close by, but in another tree. My friend told me that he and his sons had watched the building of the new nest with great interest, expecting to get some more eggs again this year. Accordingly, when the nest was finished, and sufficient time had elapsed for the eggs to be deposited, one of the sons climbed up to the nest, but found no eggs; so they waited a few more days, and the son again climbed the tree, but was again unsuccessful in finding any eggs, though the birds were very noisy, and dashed at him several times, as they always do when a nest contains eggs, more especially if the female is sitting. After this second unsuccessful visit to the nest, a consultation was held between the father and sons as to what was to be done. They felt certain from the time that had elapsed since the nest was finished, as well as from the manner of the birds, that eggs had been laid and incubation commenced, yet there were no eggs in the new nest; so, after a little conversation, they agreed to try the old nest. The son accordingly climbed the tree to the old nest, and there he found three eggs partially incubated. This seems to have been rather a curious proceeding on the part of the Buzzards. Had they built the new nest and intentionally forsaken it as soon as built, and returned to the old one with the intention of misleading the egg-searchers? or had they deserted it, after seeing the first unsuccessful attempt on the new nest, and returned to the old nest, which had not been attacked this year? However this might have been, the *ruse* was nearly successful, the eggs being considerably incubated when taken. But, whatever might have been their reason, there can be no doubt that the Buzzards built the new nest, made no use of it, and returned to their old quarters. I have known Wrens build a nest, and apparently for no particular reason desert it and build another, not return to an old one; and I think Mr. Gurney, jun., has made some observations on this subject in 'The Zoologist,' though I cannot now find them, but I do not remember that he said anything about this being a peculiarity of the Buzzard also, nor have I known or heard of this peculiarity in that bird before.—Cecil Smith (Lydeard House, Bishop's Lydeard).

Inability of Birds to distinguish Eggs.—This year I came across a nest of the Blackbird, in which I found two misshapen three-cornered flint stones (evidently picked out of the road), upon which, in addition to an egg laid that morning, the hen was complacently sitting. A week or two later I found a nest of the Spotted Flycatcher, containing three eggs, which I exchanged for three hazel-nuts, completely filling up the bottom of the nest; upon returning a day or two later, I found one of the nuts ejected, and a fourth egg laid in its place: the bird was sitting when I went up to it. Since birds evidently do not distinguish either stones or nuts from their eggs, it is easy to exchange the egg of one bird for that of another. A blackbird having built in a plum-tree in the garden, and laid two eggs, having observed each evening that she regularly left the nest at 7.45 p.m. for about a quarter of an hour, I added an egg of the Song Thrush; she never noticed the addition, but sat on the three until the same time the next evening, when, seeing that she had laid a third egg, I exchanged it for a second egg of a Song Thrush; this was repeated the next day, and had it not been for a neighbour's cat I do not doubt but she would have laid her last egg the next day, and reared an equal number of Thrushes and Blackbirds. Shortly afterwards, I found a Spotted Flycatcher's nest between the fork at the base of the large branches of a plum-tree, containing two eggs; I exchanged them for those of the Common Linnet, and the bird laid a third egg, which I also took, but gave her nothing in exchange; to my surprise, she continued to sit, and when I returned from the country, the Linnet's eggs were just ready to hatch out. I also exchanged two eggs of the Greenfinch for those of the Robin, and two more eggs were laid, the second of which was white and spotted much like that of a Greenfinch.—ARTHUR G. BUTLER (10, Avington Grove, Penge).

GODWITS AND KNOTS RETAINING THEIR WINTER PLUMAGE IN SUMMER.— A singular fact connected with the spring migration of the Bartailed Godwit is that a large number remain about our bay and estuary late into the summer, long after their companions have reached their northern breeding grounds, and are engaged in rearing their young. Another fact, well worth the notice of naturalists, is that although in first-rate condition very few of the birds that remain with us (probably not one in fifty) exhibit the red summer plumage, but are always seen in their grey winter dress. During the months of March and April last Godwits were scarcer than usual in the bay and estuary; flocks of only twenty or thirty birds were most usually met with. However, considerable additions were afterwards made to their numbers by birds from more southern localities, which as usual made the sands of the bay a resting place on their way to their northern breeding grounds. A considerable number of these birds remained after their companions had taken their departure, and lingered on through the months of June, July, and into August. On June 12th I observed about twenty birds on the sands near this place, and all appeared in the grey plumage, none showing any trace of red. On June 19th, being anxious to ascertain whether the Godwits still remained, I went down the river in my punt to a favourite haunt of theirs, near the Island of Bartragh, where I met with a flock of about one hundred and thirty of these birds; and after examining them through a glass for some time I was only able to distinguish a solitary individual with the red breast of summer; all the rest showing the grey backs and white under parts peculiar to the winter plumage. The flock afterwards broke up into small detached parties: one, of seven or eight birds, accompanied by the redbreasted one, I followed, but was unable to secure the latter bird, though I shot three of the others; one was in the perfect grey plumage; and the only trace of summer shown by the other two was an odd red feather seen here and there on the front of the neck and breast, probably not more than half a dozen on each. Ten days afterwards, *i.e.* June 29th, I went down again, and saw about the same number of birds, probably the very same flock at the old haunt; but though I carefully observed them with the aid of a glass for nearly half an hour, I was unable to make out a single redbreasted bird. While watching the Godwits I was surprised to notice about twenty Knots amongst them, and these also were in the grey plumage. Wishing to examine these birds I shot a Knot and two Godwits, none of which showed any trace of summer dress; and the Knot, and one of the Godwits, had even begun the autumnal moult, the young feathers appearing being of a very light grey colour. When returning with the flood-tide I observed a few birds resting on the opposite side of the sandbank, and paddling round to obtain a closer view I noticed a pair of redbreasted birds standing in the shallow water apart from the others; on approaching within about seventy yards, with the aid of my glass I made them out to be a pair of Blacktailed Godwits in the beautiful perfect summer plumage—and very handsome they looked at the time, with the sun shining full on their chestnut-coloured breasts. I was unable to look after them again until August 2nd, when I met with about fifty Bartailed Godwits at the same place, three showing red breasts, but of a much paler red than that of the Blacktailed Godwits, seen on June 29th. These bartailed birds were evidently part of the flock which lingered about the sands throughout the summer, their excessive wariness proving almost conclusively that they were not birds lately returned from their breeding haunts; the latter, both old and young, being always tamer, and more easily approached than those which have remained about our shores throughout the season. In strong contrast to the late stay of the Godwits and Knots, some of our other waders returned unusually early from their breeding grounds: as early as June 19th I saw about seventy Redshanks and fourteen Greenshanks, near Roserk Abbey; and by the 29th the numbers of the Redshanks had increased to over two hundred, and the Greenshanks to about twenty birds. The shores of the islands near the Abbey are a favourite resting place for these waders in the early part of the season on their return from their breeding grounds, and before they scatter along the adjacent coasts for the winter.—ROBERT WARREN (Moyview, Ballina, Co. Mayo).

THE CAPERCAILLIE IN SCOTLAND.—At page 221 allusion was made to a paper read by Mr. Harvie Brown, before the Natural History Society of Glasgow, entitled—"A Chapter in the History of the Capercaillie in Scotland." From a report since come to hand we are enabled to supply the following extracts, which we have no doubt will be read with interest: —"Proprietors of pine forests often destroy Capercaillies in the doubtless just belief that they do considerable damage to the trees by picking out the leading buds, thus dwarfing and rendering the tree unfit for timber. Some naturalists, and proprietors of forest land as well, assign the results of stunted growth, turfy appearance of young trees, and deterioration of Scotch fir in this country to one or both of two other causes:—(*a*) The importation of impure seed, and hybrid 'strains,' causing an inferior growth of less healthy wood, less able to stand the rigour of late frosts than the native and undegenerate Scotch fir, which latter is still to be found in some parts of Scotland, although native and healthy seed is scarce, or becoming so. It has been the fashion, too, of late years purposely to plant stunted and inferior kinds to provide cover for game. (*b*) The ravages of insects, principally beetles. Of these, *Hylurgus piniperda* attacks the cores of the buds and young shoots, piping the latter, and causing the former to drop off, stunting the growth of the trees, and making them bushy and useless. Another species bores into the wood and back of the stem, not to speak of ten or a dozen other beetles, as well as *Tenthredinidæ*, *Nematus*, *Coccus*, and their larvæ, which feed upon the leaves. The actual work of destruction carried on by the bird and by the insects may perhaps be easily distinguishable in most, if not in all, cases; but the results in after years to the trees cannot always be so easily assigned to the work of any one of them. To these two causes perhaps a third may be added with safety,—improper exposure, insufficient drainage, unsuitable soil; in short, bad forestry, and late frosts and bright suns acting upon unacclimatised or inferior plants, no doubt in some cases has something to do with it. Arising from these facts is the question whether these insects or their larvæ, individually or collectively, attack truly healthy native trees equally with diseased or inferior foreign importations. In answer to this we have Mr. Dunn's evidence that they do, but he only speaks of one out of many pine-destroying species, viz., *Hylurgus piniperda*. He informs us that this beetle for the most part attacks trees under twenty-five years of age. If, as he affirms, Capercaillies only attack trees which are healthy, its attacks some day will be confined to trees above that age, if the *Hylurgus* become very populous throughout our forests. Notwithstanding strong evidence to the contrary from Mr. Dunn and Mr. Brown, of Perth, Capercaillies feed largely upon insects. This is specially the case when birds are young, but the probability is that grown birds do so also at certain seasons. We have seen that young birds feed largely upon the larvæ of *Tenthredinidæ* and other insects, and insect larvæ which live upon or are destructive to pines. The questions of interest arising from these facts are:—What appreciable damage can be laid to the charge of the insects, individually or collectively, or their larvæ? Mr. Crawford, manager on the property of Clathick, informs us regarding the ravages of two species of beetles that out of three hundred and fifty trees cut upon the estate, one hundred and twenty were dead, or at least gone in the top, owing, he believes, entirely to their ravages. Can anyone in the same way produce appreciable proofs of damage which can be laid correctly to the charge of the Capercaillie, and if so to what extent? What amount of good can be traced to the destruction of insect life by the Capercaillie? How long does the insect-feeding age of the birds continue? What insects or larvæ, and what amount of them, do the young Capercaillies consume? Do the old birds never eat insects, beetles, or larvæ of any kind? To solve these and other minor questions the crops and gizzards of both young and old birds should be examined with the critical eye of the entomologist, and exact statistics of the contents of each crop and gizzard noted down under each separate specimen, with the dates and localities, and when possible the probable or exact age of the bird. Birds from a day or two old up to the adult stage should be critically examined during the summer and early autumn months. Special attention should be paid to the presence of larvæ in the mouths, throats, and crops of young birds as soon after death as possible, or even of living young birds. Positive identification of the insects is of the highest importance, and the number of individuals should be carefully counted. Where personal entomological examination is practicable of the crops and gizzards of newly killed birds, such should be taken advantage of. Where personal entomological examination cannot be instituted, the crops and gizzards of each bird should be kept separately in close muslin bags, with parchment labels attached, and the whole dropped into alchohol: an ordinary wide-mouthed pickle-jar would probably hold three or four crops and gizzards, or more if the birds be young. The jars can then be forwarded to entomologists for identification of the contents. Dr. Buchanan White, of Perth, has promised assistance in the identification of insects. Mr. Robert Collet, of Christiania, who takes a great interest in the matter, will also devote some share of attention to it in Norway. Mr. Maloch, Perth, has promised to preserve any crops and gizzards that come in his way. Capt. Colquhoun, of Clathick, has offered assistance; and Mr. Maclellan, Superintendent of Parks, Glasgow, has also taken an interest in the subject. There is still a considerable degree of scepticism evinced by many as to the utility of such enquiries; unthinkingly they often pooh! pooh! the efforts of naturalists to get at the more minute truths, which do not always appear on the surface, but upon which not uncommonly the whole question at issue hinges. Investigations often begin in ignorance, and from a spirit of enquiry develop truths of considerable interest. Men are not all Argus-eyed naturalists, who can detect at once, at all times, and under all circumstances, the reasons for everything. If such were indeed the case Natural History would be robbed of half its charms."

NOTES FROM THE NEW FOREST, ON WOODPECKERS.—On May 26th I started in company with my brother from a village in the New Forest in search of Woodpecker's eggs. After taking a Wryneck's nest *en route*, with seven eggs, from an old tree in an orchard, we reached the forest, where the trees and glades, and fern and solitude—endless as it seems—offer a perfect paradise to the ornithologist. We were soon made aware of the fact that the Green Woodpecker is common there, for though we seldom caught a glimpse of him, yet his loud and merry laugh, as it echoed through the trees, and was answered far away by another of his species or his mate, seemed to say, "Don't you wish you may catch me." We noticed that before rain these birds were always more noisy. We soon found several trees with suspicious round holes,—generally beech trees, which are very numerous and very fine in the forest; but as the holes were, in all cases but one, some distance from the ground (from about fifteen to twenty-five feet), and as neither of us could "swarm" trees, we began to despair, without a ladder and a good chisel, of being successful. At last, towards evening, and after searching all day, we found a tree to which my brother thought he had seen a Woodpecker go. There sure enough under the tree were quantities of little bits of wood, as if some one had been chopping there. This being a sure sign that the Green Woodpecker has been at work (for they always clean out and deepen the nesting hole), we looked up and saw a hole some twenty feet from the ground, but it did not look fresh, or as if used. However, by aid of some branches I managed to get up, but could not get my hand in, as the birds invariably make the hole just, and only just, large enough to admit themselves. I knocked the tree, but no sign of any bird, though we heard a laugh or two from one in the trees near; as I descended out flew the old bird from the identical hole. What was to be done? we had no doubt there were eggs in, and get them we must. Off we set to a cottage we had seen some half a mile away (houses are very few and far between in the New Forest), borrowed a ladder they happened to have, asked for a saw which, being about a yard long, would not do, and finally succeeded in getting a large hammer and chisel, and the owner thereof to accompany us. On reaching the tree, our guide, somewhat like a squirrel, was soon up; and as the blows of his hammer resounded through the forest the chips flew off, and in ten minutes the hole was large enough to admit one's hand. I got up, and found the old bird sitting on four eggs, which were quite fresh. The bird was released, and the eggs blown. There was no nest; the eggs, which are pure white, and look like pearls before blowing, were snugly laid on the rotten wood. This seems to be the case with all the species. The Green Woodpecker generally lays seven eggs, and I should think from the date, May 26th, that the bird had been previously disturbed, and laid again. We saw several eggs, taken about May 12th. The birds seemed to prefer beech trees (perhaps from their being more numerous than any others), and selected either isolated ones, or one of two or three. It may be where the timber is thick and closely planted the trees are younger, and not adapted for boring into. The entrance hole is round, or sometimes oblong, and has to go some inches in, according to the thickness of the tree, before reaching the middle, or rotten part, when it goes down from two to three feet. There are often two holes; whether one is an escape hole in case of danger, or whether as the bird deepens the hole year by year she taps it into another place for convenience, I am not prepared to say. I am disposed to think it is made as an escape hole. I found near Penmaenmaur, North Wales, this year, on May 29th, a Green Woodpecker's nest, with young ones just hatched. Our guide informed us that he knew of a "Magpie-Woodpecker's" nest, from which we inferred he meant the Lesser Spotted Woodpecker. He took us to a small, dead, stripling oak, or remains of one, ten feet high, and there at the top in a small hole, similar to what a Cole Tit would make, was the nest, or rather the eggs. We soon cut the hole open, and found six eggs in,—white, smaller than the Wryneck's, and hard sat. We managed, by great perseverance and care, to blow four of them. The bird seemed very shy, and left before we reached the spot. As the tree was in the midst of several hollies the eggs would never have been discovered, but from the fact of a noisy Great Tit, whose nest was in the same tree, having attracted our guide to the spot, and caused him, after seeing the "Magpie," as he called her, to search for the nest. This kind of Woodpecker seems far less numerous than the green.—H. G. TOMLINSON (The Woodlands, Burton-on-Trent).

NESTING HABITS OF THE KESTREL AND SPARROWHAWK.—In most works on ornithology the Kestrel is said to build its own nest; sometimes taking, however, the deserted nest of a Crow or Magpie; and just *vice versâ* for the Sparrowhawk. During the last three or four years I have examined personally a considerable number of Kestrel's nests, with the view of ascertaining the correctness or otherwise of the above statement, with the following result:—All but five, out of about thirty, were in old Magpie's nests. Sometimes I found the dome entirely removed, at other times it was left on. In no case did I find they had taken the trouble to line the nest, save now and then two or three pieces of sheep's wool were added. Of the other five, four were in crows' nests, and the remaining one was perhaps of the Kestrel's own manufacture; but of that I am doubtful. As to the trees the nests were in, most preferred elms, then oaks, some fir trees, two ash trees, and the last laid in a Magpie's nest in a thorn bush! The number of eggs was generally five, a few of four each, and three of six each. I have not been able to examine nearly so many Sparrowhawk's nests, it being a very much rarer bird in most of the Midland Counties.

Almost all of the nests I found were undoubtedly of the Sparrowhawk's own make, one or two were in crows' nests, and I never found one in a Magpie's. They generally preferred fir tree, especially Scotch, and, unlike the Kestrel, they do not like building in an open country; the latter appear indifferent, but Sparrowhawks greatly prefer a fir tree spinney. The eggs vary in number from four to six; the last nest I found was in a larch tree, and contained the latter number. When the young Kestrels are hatched the parents supply them with rats and mice in large quantities. By the time the young are ready to fly the nest will be found to be quite flat at the top, owing to the accumulation of "pellets," composed of the indigestible parts of their prey, that the birds eject. The number of mice and rats destroyed by a single pair of these birds in one season is perfectly marvellous. I have never found any remains of birds in either the nest or the "castings." Not so, however, with the Sparrowhawk; the young seem to be fed in a great measure on Missel Thrushes; and the latter bird, more than any other, serves to satisfy the hunger of the parents. They are also very fond of little rabbits, greenfinches, and sparrows. Both species of birds lay eggs differing very much in size and colour: Sparrowhawk's are just as frequently blotched at the smaller end as they are at the larger; and Kestrels lay two varieties, one having deep red for the ground colour, the other brown.—C. MATTHEW PRIOR (The Avenue, Bedford).

PUGNACITY OF THE WATERHEN.—The Common Waterhen is known to be a species in which combats between individuals (probably males) frequently occur; but the following description of such a contest noted by an eye-witness, who communicated it to me, may perhaps be worth recording. The occurrence took place in a wood at Northrepps, Norfolk. on the 31st July. My informant says:—"I saw a regular combat between two Waterhens yesterday. On hearing a noise amongst some elder bushes I went close to where the birds were fighting. They had taken fast hold of each other's wings, near the body, with their feet, and were rolling over and over, pecking each other meanwhile with their bills. After two or three minutes they rested, and then began again, till I separated them, when I found that one appeared to have been injured in the eye by the attack of its opponent."—J. H. GURNEY (Northrepps, Norfolk).

PROVINCIAL NAMES OF BRITISH BIRDS.—Having for some time collected Scotch local names of birds, I am much interested in Mr. Little's notes of those used in Cornwall (p. 222). With Scotch names it is very hard to define the district to which many belong, the same being used in places far apart. In some cases also the same are used in different districts for different species. The origin of many of these names would form a curious study, and would no doubt bring to light much of interest to the philologist as well as to the naturalist. Some of the names given in the Old Statistical

Account of Scotland are very quaint, but a few I think must be taken with reservation. My friend Mr. J. A. Harvie Brown has kindly made a list of them for me, and I daresay will communicate it to 'The Zoologist.'—JAMES LUMSDEN, JUN. (Arden House, Dumbartonshire).

OCCURRENCE OF THE TREE PIPIT IN IRELAND.—Two birds of this species have been lately observed by some friends and myself—one near the old church of Portmarnock, on the north side of Dublin, and the other close to Milltown Railway Station, on the south side. We have repeatedly seen the latter bird rise from the ash trees by the roadside, and describe a half-circle in the air, returning to the trees again, and frequently to the highest branch. Its song—"the monosyllibic effusion 'tsee, tsee'"—could be heard at a considerable distance, and differed a good deal from that of some Meadow Pipits close by. I have never noticed this bird before, and am glad to be able to record its occurrence. I carefully observed it for several days before writing, and hope to procure a specimen before the autumnal migration. I have looked everywhere for the Blackcap about Dublin, but this year in vain.—C. W. BENSON (Rathmines School, Dublin).

[So far as we are aware, the Tree Pipit, which is a well-known summer visitant to England and Scotland, has not hitherto been recognised in Ireland, and the present, we believe is the first recorded instance of its occurrence in the sister isle.—ED.]

THE WOOD WREN IN IRELAND.—I was fortunate enough to obtain a specimen of the above rare Irish bird in beech woods here on the 1st June last. There were three or more in company, and I shot one while in the act of singing. I watched them for some time through a glass first, and I could observe well the "heaving breast and quivering wings" as it trilled its "short, shrill, feeble, tremulous song." This latter was its more frequent note, while the "long, anxious cry four or five times repeated, which would be a sequel were it not so sweet," seemed unaccompanied by the motion of its wings. The specimen I obtained I have sent to Mr. More, for the Museum of the Royal Dublin Society, who has kindly sent me the following particulars concerning its occurrence in Ireland:—Thompson, in his 'Natural History of Ireland' (vol. i., p. 189), mentions it as holding "a very doubtful place in our fauna." He then gives two instances of nests belonging to a larger and *whiter* bird than the Willow Wren, but both were lined with feathers, which the Wood Wren is known not to use; it seems to me also that "greener" or "yellower" would be a more appropriate adjective to apply to the Wood Wren. In Prof. Newton's edition of "Yarrell" (vol. i., p. 430), it is stated that "Mr. Harting was informed by Sir V. Brooke of his having shot it in County Fermanagh,* and by Mr. Blake-Knox of his procuring a specimen shot in the county of Dublin." Nevertheless the bird is certainly not so rare as is supposed; I have been familiar with its song for seven or eight years, and I have often watched it and wondered what the bird was when unable to procure a specimen. I have known several pairs for three separate summers in the oak woods of Derrybawn at Glendalough, County Wicklow, and in different parts of that beautiful place. I have also recognised the song and watched the birds amongst oaks near Powerscourt Waterfall, and in the Devil's Glen, in the same county; and it was a great delight to me to be able to solve a difficulty of so many years standing at last, in spite of the pity it was to shoot so beautiful a little bird. From the range which the above localities give the bird in Ireland, it has no doubt escaped observation in intermediate districts. I would suggest, for instance, that it most probably visits the wooded glens in the County Antrim, which are admirably suited for it. When I obtained the bird I had no difficulty in identifying it, as I was fortunately possessed of 'Our Summer Migrants.' I think Charles Kingsley's description, from which I have quoted, hits off the idea of the song to perfection. Perhaps I ought to mention that the other Wood Wrens left for good after the death of their messmate.—H. CHICHESTER HART (Glenalla Bay, Co. Donegal).

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* Is this specimen still in existence? [We believe it has been preserved by Sir Victor Brooke.—ED.]

PARTRIDGE SWIMMING.—On July 15th, whilst taking a walk by the side of the River Rye, in a grass-field called the Mickle-holme, a dachshund that I had with me "set" two Partridges underneath a thorn-bush growing a short distance from the river. Immediately after I heard a splash in the stream, and on going to the side, I saw in the middle one of the Partridges. It did not seem to be in the slightest degree frightened, but calmly paddled, apparently with as much ease as a common Moorhen underneath a bush on the farther side, and I saw no more of it. The bird could easily land from the bush. I looked about the bush out of which the birds flew, but could not discover any nest. The fact of a Partridge being able to swim was to me a great surprise, and I shall be glad to know whether any of the readers of 'The Zoologist' have ever witnessed a similar action on the part of this bird.—WALTER STAMPER (Highfield, Oswaldkirk, York).

[We have known more than one instance of Pheasants swimming, and a Landrail will take the water well and fearlessly.—ED.]

HYBRID BLACK GROUSE AND CAPERCAILLIE.—Mr. Edward Jackson, of the Poultry Market, Smithfield, was recently good enough to send for my inspection a well-preserved specimen of a hybrid between the Black Grouse and Capercaillie. It was received in a large consignment of blackgame from Norway in the month of March last, and was the first of the kind Mr. Jackson had seen. With the crest and beard of the Capercaillie, it has the glossy neck-feathers of the Blackcock, and tertials like those of the Capercaillie. The shape of the tail is exactly intermediate between those of the two species. Although such hybrids are not unknown to naturalists, they are perhaps sufficiently uncommon to deserve notice when met with.—J. E. Harting.

Song Thrsh incubating on the Ground.—On the 10th June, while rambling with my brother in the Peak District of Derbyshire, we found a Thrush nesting under circumstances that were quite new to us. We were descending the steep but grassy slope of a hill some 1600 feet above sea-level, and when about fifty feet from the summit, a Thrush rose from under our feet, discovering four eggs laid upon the short grass without trace of any nest. The hill faced the north, and the narrow ledge upon which the bird sat was fully exposed to the weather, which was very cold and wet about that time. I have heard of Thrushes laying upon the ground under the shelter of a bush or overhanging bank, but never in such an exposed situation.—E. A. Brown (Burton-on-Trent).

Chiffchaff nesting at a Height from the Ground.—Mr. J. E. Palmer says (p. 254) that "Professor Newton mentions in his edition of 'Yarrell' two instances in which this bird has been known to build in other situations than on the ground." This would seem to imply that the nest is generally placed on the ground. I have found a great many nests of this bird at different times, and they have all, without exception, been placed in bushes, brambles, and low hedges above the ground, from one to three feet. Indeed I believe the nest of the Chiffchaff is never placed on the ground, and when the contrary has been stated the nest of the Willow Warbler has been mistaken for it. The nest and sometimes the eggs of these two birds are much alike. I shall be glad to know if I am correct.—H. G. Tomlinson (The Woodlands, Burton-on-Trent).

[We have found numerous nests of the Chiffchaff on the ground *in woods*, under brambles or other thick undergrowth, as well as on hedge-banks.—Ed.]

Cuckoo laying twice in the same Nest.—An instance somewhat resembling that mentioned in the July number of 'The Zoologist' (p. 256), of a Cuckoo laying two eggs in the same nest, has just occurred in our stackyard, where, some time back, a Pied Wagtail's nest was discovered in one of the stacks containing a young Cuckoo. For a fortnight or more before this, a Cuckoo was seen almost every afternoon about the garden, and just before the young one left the nest the old Cuckoo was several times observed to fly past within two or three yards of the nest, though never to settle by it. The young Cuckoo left the nest on the 27th June, and on the 30th my brother discovered in the same nest a Cuckoo's egg, together with one of the Pied Wagtail. I see but little reason to doubt that the two Cuckoo's eggs were laid by the same bird.—R. M. Christy (Chignal, near Chelmsford).

Willow Wren nesting at a height from the Ground.—I heard the other day that a nest had been found in a clump of whins, and from the description given of the bird and nest I surmised it was a Willow Wren. Wishing to ascertain whether this was the case I went, July 9th, to the place, which is about a mile distant, and found my surmise correct. It was built about two feet from the ground, and contained four eggs. This is the second instance in which I have found the nest of this species at some height from the ground. I found one in July, 1876, built between two rocks at a distance of three feet from the ground; and what was a remarkable coincidence both were built near the Goit-stock Waterfall. Whilst rambling in Upper Wharfedale, last Whitsuntide, I met with the nest of a Cole Tit in an abnormal situation. It was built in a hole in a steep bank, a few yards from an old moss-covered wall, in a fir plantation, and contained young ones nearly fledged. What inducement had operated to determine the bird to select such an unusual site I am at a loss to imagine. The immediate neighbourhood offered far more apparently suitable breeding places.—E. P. P. Butterfield (Wilsden).

Swordfish in Mount's Bay.—Mr. A. O. Michell, of Chymowak, on Thursday last, August 15th, captured a swordfish, *Xiphias gladius*, in Mount's Bay. It was seen, and deliberately fished for, and taken on a hook and line. Mr. Michell very kindly sent the specimen to me, and I am therefore able to give you its measurements:—Length, including sword, 8 feet 7 inches; without sword, 6 feet 4 inches; from nostril to tip of sword, 2 feet 3 inches; greatest girth, 3 feet; from tip to tip of caudal fin, 2 feet. Weight, 138 lbs.—Thomas Cornish (Penzance).

Swordfish and Sunfish on the Coast of Devon.—On the 9th July a fine female swordfish, *Xiphias gladius*, nine feet six inches long, including the sword or snout, and weighing three and a half hundredweight, was captured near the Eddystone in the drift-net of the fishing lugger 'Dewdrop,' and brought into Plymouth for exhibition. Upon examination I found several remarkable parasites, about ten inches long, adhering to the body just under the pectoral and other fins, which had pierced through the skin so deep that it required a very strong pull to get them out. Mr. Couch, in his account of the swordfish says:—"This fish shows itself as one of the most active of our visitors, occasionally springing above the surface, an action supposed to be caused by the irritation it suffers from the torment inflicted by a parasitic animal that sometimes pierces through the skin beneath the pectoral fins." Adding, "It is probable, however, that this leaping above the surface which has been witnessed by our fishermen is frequently to be attributed to a wanton exuberance of spirits, and although many instances are recorded of the capture of this fish in Britain we are not acquainted with one in which the attention of observers has been drawn to the presence of this supposed enemy." I am pleased to say that I was able to secure one or two of these extraordinary parasites, which I have preserved in spirit. I was also much struck with the angular fin-like processes, one on either side of the body, near the tail, the use of which, I have an idea, might possibly be—acting on the principle of the feathers on the end of an arrow—to steady and direct the swift course of the fish when making its vigorous thrust. The specimen is, without doubt, an adult one, from the fact of its dorsal fin, although very high in front, being worn down to a level with the back unto near the end, when it rises again into a small fin. It was very amusing to hear the exhibitor, when describing this "monster of the deep, or whale destroyer," as he called it, inform the visitors that the animal, having no teeth, evidently lived by "suction," at the same time saying how many mackerel, herrings, and pilchards he had taken from its stomach; and that it was a young specimen, as a captain of a ship, who had seen hundreds three times as large as the one exhibited, informed him that when full grown, "there were teeth all along the edges of the sword!"—of course meaning the sawfish. A few years since I saw a portion of the beak of a swordfish which had been driven clean through the side or bottom of a Plymouth trawler, where it broke off and remained, but still causing a leak. During the month of July many sunfish, *Tetraodon mola*, made their appearance on the coast of Devon. An immense one was taken at Torquay, measuring some eight feet "from fin to fin"—as it was described—and about five feet long. I also examined one, of smaller dimensions, that was captured off Cawsand Bay, near Plymouth, on the 17th, and was much struck with the prominent brow, or frontal bone, which became apparent when the flesh began to shrink, after being a day or two out of the water, considerably altering the profile and form of the face. Blue Sharks were also plentiful on our coasts about the same time, and several were captured. Their appearance no doubt was attributable to the abundance of mackerel and other fish in the neighbourhood at the time.—JOHN GATCOMBE (55, Lower Durnford Street, Stonehouse).

CORNISH CRUSTACEA.—In the course of the last five days (second week of August) I have procured the following species, mostly from the deep sea, at Prussia Cove, Marazion:—Wrinkled Swimming Crab, *P. corrugatus*, very small, not half an inch across the carapace; Long-armed Munida, *M. Rondeletii;* Andrews' Galathea, *G. Andrewsii;* Long-horned Porcelain Crab, *P. longicornis;* Long-legged Spider Crab, *Stenorhynchus longirostris;* a Common Spider Crab, *Maia squinada*, half the adult size, but covered all over the back with a growth of some small, thick and long sea-weed or semicoralline substance, just as Gibbs' Spider Crab usually is. Besides these there were, of course, the crabs common to the place.—THOMAS CORNISH (Penzance).

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ENTOMOLOGICAL SOCIETY OF LONDON.

July 3, 1878.—H. W. BATES, Esq., F.L.S., F.Z.S., President, in the chair.

Mr. Basil George Nevinson, of 19, Torrington Square, W.C., was ballotted for and elected an ordinary Member. Mr. John A. Finzi, of 105, Gower Street, W.C., was ballotted for and elected a Subscriber.

Mr. F. P. Pascoe exhibited a selection of insects of all orders, as well as of Arachnida and Myriopoda, from a collection recently made during a tour through Algeria and the South of Spain. He also called attention to a remarkable Myriapod, having the cylindrical body of the *Julidæ*, but with only one pair of legs to each somite.

Mr. W. C. Boyd drew attention to the food-plant of *Elachista cerussella*, which has been always reputed, both in this country and on the Continent, to feed in the leaves of *Arundo phragmitis*. He stated that although he could not positively assert that the insect never feeds on this reed, he much doubted its doing so, as the *Arundo* does not usually come into leaf till the larva of *Elachista* is half-grown. All the specimens which he had bred were found in the leaves of *Phalaris arundinacea*, a grass which somewhat resembles *A. phragmitis* before the flower appears; hence, no doubt, the mistake.

Mr. H. T. Stainton remarked that although Mr. Boyd had shown that the *Elachista* larva undoubtedly feeds in *Phalaris arundinacea*, it must still be regarded an open question whether it does not also feed in *Arundo phragmitis*.

Mr. W. L. Distant exhibited an Homopteron which had been sent to him for identification, through Dr. Sharp, from Mr. Lawson, of Auckland, New Zealand. The species was *Ricania australis*, Walker, and Mr. Lawson wrote that it had been observed last year on the dahlia for the first time. The markings of the New Zealand specimen were, however, much darker than those of the Australian ones, and therefore if, as possible, the insect had been introduced from Australia, its arrival must probably have taken place some time ago to allow for the process of melanism which had ensued.

Mr. J. Jenner Weir exhibited two specimens of *Leucania turca*, with several pollinia of *Habenaria bifolia* attached to the trunk of each, these being the only two out of fifty specimens which had the pollinia thus attached. He had been able to satisfy himself, by comparison, as to the species of orchid from which the pollinia had been removed. Mr. Weir also exhibited a specimen of *Hipparchia hyperanthus*, in which the ocelli on the under side of the fore and hind wings were unusually large, oval, and with the central white spots ovate and acuminate outwards. The specimen was taken in the New Forest, and was the first of the species observed at the latter end of June.

Prof. Westwood called attention to a note in 'Nature' of June 27th (p. 226), reprinted from the 'American Naturalist' for June, and relating to the manner in which Lepidoptera escape from their cocoons. The article referred to is by Dr. A. S. Packard, who records his observations on *Actias luna*, and describes and figures the cocoon-cutter by means of which this moth cuts its way out. Prof. Westwood claimed priority for the 'Transactions' of the Society where similar observations are recorded by Capt. Hutton (1st series, vol. v., p. 85), who describes "the method by which *Actias selene* cuts its way through the cocoon," and also calls attention to an instrument which he names the "wing-spur."

Prof. Westwood also stated that he had recently heard of injuries done to potato crops by insects which had not hitherto been considered injurious, viz. *Cetonia aurata*, which had been found stripping the leaves, and a lepidopterous larva (probably a species of *Botys*) which bored into the stem.

Mr. Jenner Weir stated with reference to the organs at the base of the fore wings in the large *Bombycidæ*, that he had distinctly heard a clicking noise in the cocoon of *Attacus polyphemus* just before the emergence of the imago, caused without doubt by the creature's sawing asunder the silk threads with the organs in question. He had not heard the same noise in the cocoons of *Attacus cynthia* nor in those of *A. cecropia*.

Mr. Dunning read the following "Note on Spiders resembling Flowers":—

"At recent meetings of the Society we have had brought to our notice several interesting cases of resemblance between insects and plants, the suggestion being that the insects thereby obtain protection from foes, or that in some other way the resemblance is advantageous to them in the struggle for existence. The following observations, made by my friend Mr. Thomas Nottidge, of Ashford, appear to afford other instances of the same class of phenomena, in which spiders are the possessors of the protective or imitative resemblance:—'On the 11th May, 1878,' Mr. Nottidge writes, 'in the beech woods on the escarpment of the chalk between Westwell and Charing, Kent, I noticed the number and variety of the insects that visited the blossom of the wayfaring tree, *Viburnum*, and on taking the blossom in my hand, I found a spider most beautifully disguised both for protection and for the easier capture of her prey. The spider was all over of a pure creamy white, the exact tint of the flower, and her abdomen exactly resembled the unopened buds—of which there were many in each cyme of blossom—not only in colour, but also in size and shape. Nearly every bunch of blossom was occupied by one or more of these spiders, the young and half-grown ones being just like the full-grown ones in colour. The male was not so well disguised as the female, having a few black dots on his back and some black about the head and jaws. Many of the spiders had captured insects, and one had got a large drone-fly, which was still alive, and which after a long fight escaped. These spiders are hunters, not web-spinners; but I was amused to observe that one which I took in my hand ran up to the highest point at once, and holding up the abdomen let a thread run out on the gentle breeze—the sun was shining and the thread was quite visible—until it touched a twig about sixteen inches from my hand; he then let himself drop from my hand and ran up the thread to the twig; I thought this mode of escape was adopted by spiders only as a *dernier ressort*. I had no means of carrying off one of these spiders. What becomes of them later in the summer? for as soon as the white blossoms are gone, his colour would be a great disadvantage.'

"I was unable to accept an invitation to see these spiders *in situ*, but two or three weeks later I received a further communication from Mr. Nottidge. 'On the 10th June,' he writes, 'at Petersfield, Hants, I found a white spider, very similar to, if not identical with, the one I described to you: he was in the blossom of the wild guelder-rose. He differed from the one I found near Westwell in having reddish brown spots on the side of the abdomen, but they were not sufficiently distinct to interfere with the completeness of his disguise. There were many bushes of the mealy *Viburnum* close by, but the blossom was over. On the same day, and in the same locality, I found a very similar spider on the blossom of *Orchis maculata*, but in this case the spots on the sides of the abdomen were large, of a dark red-brown colour, and very sharply defined; and when the spider stood in his usual position, with his head downwards, these spots very closely resembled in size, shape, relative position, and—at a yard's distance—even in colour, the dark purple pollinia of the flowers. I found many specimens of the spider on *Orchis maculata*, one on each spike of blossom, but I searched in vain for one on the dwarf orchis (*O. ustulata*), although this is much like *O. maculata*, but its pollinia are not dark in colour. Can it be that as the season advances this spider changes colour, and that by each successive change he is specially adapted to live concealed on the blossom of some special plant?'"

Mr. Dunning exhibited three living specimens of the spiders captured by Mr. Nottidge at Petersfield, on the guelder-rose and on *Orchis maculata*. Apparently they were all females of *Thomisus citreus*, a common species on flowers, the sexes of which are so dissimilar in size and colour that they have been described as distinct species.

Mr. Jenner Weir remarked that he had lately been observing the habits of the same species of spider in the New Forest, and that he had seen it sometimes station itself in the centre of a composite flower, with its legs expanded like the exterior rays of the flower, and sometimes in the flowers of orchids, with its legs extended horizontally. It appears to be able to destroy even the honey-bee, which he had found dead in its clutches.

The Secretary read a note by Mr. J. Haselden, communicated by Sir Sidney Saunders, relating to the habits of the honey-bee (*Apis fasciata?*) in Egypt.

Mr. C. O. Waterhouse communicated a paper "On New Coleoptera from Australia and Tasmania in the Collection of the British Museum."—R. Meldola, *Hon. Sec.*

NOTICES OF NEW BOOKS.

Thirteen Years among the Wild Beasts of India: their Haunts and Habits from Personal Observation; with an Account of the Modes of Capturing and Taming Elephants. By G. P. Sanderson. 4to, pp. 387, with Maps and Photo-tint Illustrations. London: W. H. Allen & Co. 1878.

Mr. Sanderson is the officer in charge of the Government Elephant-catching Establishment in the province of Mysore, Southern India, which establishment, some few years ago, was instituted principally through his instrumentality and energy. It is here that most of his experience of wild animals has been gained from the time when he first set foot in India as a "griffin," and "an opportunity was afforded him of changing what had hitherto been his favourite recreation only—sport—into the business of his life." Having met with considerable success in capturing wild elephants in this province, he was appointed to the temporary charge of the Bengal Elephant-catching Establishment, and spent nine months in the wild and little-known region of the Garrow and Chittagong hill-tracts, subsequently returning to Mysore. It will be readily conceded that a man who has enjoyed such opportunities, in such a country, for sport and the observation of wild animals, should be well qualified to write a book like the present. Indeed, as the author himself says, "Anyone who has devoted himself to Indian field sports for some years as I have done, must have been singularly unfortunate if he has not sufficient exciting facts noted in his journal to fill a book, without the necessity of resorting to fiction or exaggeration."

The game list of Mysore is a very attractive one, including as it does the following *feræ naturæ*:—Elephant, Bison or Gaur, Tiger, Panther, Leopard, Cheetah, Bear, Wolf, Striped Hyæna, Wild Dog, Sambur, Spotted Deer, Barking Deer or Muntjac, Indian Antelope (*Antilope bezoartica*), Indian Gazelle or Ravine Deer (*Gazella Bennettii*), Wild Hog, Crocodile, Jackal, Fox, Jungle Cat (*Felis chaus*), Leopard Cat (*F. bengalensis*), Otter, Porcupine, Mouse Deer (*Memimna indica*), and Hare.

Of these the Cheetah is said to be "exceedingly rare," and neither the Antelope nor the Gazelle is considered numerous, but the rest are apparently common enough.

Of most of these Mr. Sanderson has a good deal to say, and in regard to the more dangerous animals relates some very stirring adventures. The elephant naturally receives the largest share of his attention, and the chapters devoted to this animal are full of useful statistics and information brought down to the present year.

Contrary to what is occurring in Africa, where elephants are getting every day scarcer from continued persecution, the Indian wild elephant is protected by Government, and enjoys perfect immunity throughout the Western Ghâts and the vast jungles which extend for hundreds of miles along the foot of the Himalayas into Burmah and Siam.

The mode of catching wild herds in *kheddahs,* as practised by the author to supply the Government of India with beasts of burden, is fully described, and the description is rendered the more attractive and instructive by the maps, plans, and nicely-executed photo-tints which accompany.

The largest elephant measured by Mr. Sanderson stood nine nine feet ten inches at the shoulder, and the biggest he ever killed, a dangerous rogue-elephant in the Kakankote jungle, was nine feet seven inches at the shoulder, and measured twenty-six feet two inches and a half from tip of trunk to tip of tail. The tusks alone weighed seventy-four pounds and a half.

The price of elephants has risen enormously. In 1835 it was £45 per head; tuskers of any pretensions are now worth from £800 to £1500 a-piece, and nothing is to be had, as a rule, under £150. The chief mart in India for the sale and purchase of elephants is at Sonepoor on the Ganges, where a great fair is annually held for the purpose.

It would scarcely be supposed that so unwieldy a creature as an elephant could swim well, and yet it does so probably better than any other terrestrial mammal. In November, 1875, Mr. Sanderson made seventy-nine elephants swim across the Ganges and several of its large tidal branches, and at the widest part they were six hours in the water without touching the bottom. After resting for some time on a sandbank, they again took the water, and swam for three hours more, completing the journey in safety.

Mr. Sanderson's experience in the pursuit and capture of wild elephants, and the success of the method employed by him, enables him to speak as familiarly of catching a herd of elephants as a poacher would speak of driving partridges into a tunnel-net, or a fen-man of taking widgeon in a decoy. He once took fifty-three elephants in one "drive"!

But his book is not merely a record of sport, although it abounds with well-told adventures. It gives also some account of the natural history of the wild animals met with, and the reader, besides learning a good deal about forest life in India, obtains a very fair insight into the character, manners, and customs of the natives, amongst whom the author has lived so many years, and upon whose assistance he has had so largely to rely in carrying out his successful, though often dangerous, expeditions. "The peculiar opportunities," he says, "which have been afforded him of following his natural inclinations, and, by the nature of his duties, of encountering the wild animals of Southern India and Eastern Bengal, induced him to believe that his experiences might be of some interest to the general public, and perhaps of some service to the cause of Natural History." We think there can be no doubt that both the classes of readers referred to will highly appreciate his undertaking.

Although we have alluded in detail to only one of the large animals of which the book treats, the chapters on the others possess almost equal interest, not only on account of the information imparted concerning the range, habits, and instincts of the species mentioned, but also for the useful statistics and hints with which the narrative is interspersed, and which cannot fail to be of service to sportsmen in India.

The Gamekeeper at Home: Sketches of Natural History and Rural Life. Post 8vo, pp. 216. London: Smith, Elder and Co. 1878.

THIS pleasantly written book, by an anonymous author, commends itself to three classes of readers—to the inexperienced country gentleman who would learn the requirements of a good keeper; to the naturalist who delights in roaming about the woods and fields, and observing the habits of wild animals; and to the keeper himself, to whom many a piece of sound advice and useful "wrinkle" is imparted. To these three classes we might almost add a fourth—the poacher; but we must assume that the descriptions which are given of various nefarious practices to which these gentry are addicted are not intended for the rising generation of poachers, but for the guidance of the keeper, and the safeguard of his master's game.

From the scenery described, and some of the provincialisms introduced, one would say that the book might have been written in close proximity to the Wiltshire Downs; but as the author has chosen to omit his name from the title-page, it is perhaps scarcely fair to attempt to withdraw the veil which conceals his identity. The writer, whoever he may be, has a facile pen, and the art of describing what he observes truthfully and forcibly, producing not unfrequently a picturesque effect by a skilful assemblage of common-place objects. His description of the woods in wet weather (p. 41), the park in spring (p. 62), and the haunts of birds (p. 65), may be cited as instances of this. The following extract will give some idea of the author's style:—

"Often and often when standing in a meadow gateway partly hidden by the bushes, watching the Woodpeckers on the ant-hills, of whose eggs, too, the Partridges are so fond (so that a good ant year, in which their nests are prolific, is also a good Partridge year), you may, if you are still, hear a slight faint rustle in the hedge, and by and by a weasel will steal out. Seeing you he instantly pauses, elevates his head, and steadily gazes; move but your eyes, and he is back in the hedge; remain quiet, still looking straight before you, as if you saw nothing, and he will presently recover confidence, and actually cross the gateway almost under you.

"This is the secret of observation: stillness, silence, and apparent indifference. In some instinctive way these wild creatures learn to distinguish when one is, or is not, intent upon them in a spirit of enmity; and if very near, it is always the eye they watch. So long as you observe them, as it were, from the corner of the eyeball, sideways, or look over their heads at something beyond, it is well. Turn your glance full upon them to get a better view, and they are gone.

"When waiting in a dry ditch with a gun on a warm autumn afternoon for a rabbit to come out, sometimes a bunny will suddenly appear at the mouth of a hole which your knee nearly touches. He stops dead, as if petrified with astonishment, sitting on his haunches. His full dark eye is on you with a gaze of intense anxiety; his nostrils work as if sniffing; his whiskers move; and every now and then he thumps with his hind legs upon the earth with a low dull thud. This is evidently a sign of great alarm, at the sound of which any other rabbit within hearing instantly disappears in the 'bury.' Yet there your friend sits, and watches you, as if spell-bound, so long as you have the patience neither to move hand or foot nor to turn your eye. Keep your glance on a frond of the fern just beyond him, and he will stay. The instant your eye meets his, or a finger stirs, he plunges out of sight."

Did space permit, we might quote several passages on the habits of wild creatures, which we do not doubt would prove interesting to the readers of this journal. The remarks on the mole (p. 108), on field mice (p. 109), and on weasels hunting in packs (p. 119), seem to have been dictated by a close observation of the habits of these animals and a keen appreciation of the wonderful works of Nature.

The International Dictionary for Naturalists and Sportsmen. In English, French and German. By EDWIN SIMPSON BAIKIE. Part I., 8vo, pp. 16 (price one shilling). Trübner & Co., Ludgate Hill. 1878.

Many of our countrymen who annually go abroad on shooting and fishing tours must have experienced, not unfrequently, the inutility of dictionaries, which do not afford the German or French equivalents for the numerous technical terms appertaining to their favourite sport. The language of the chase is indeed a language to itself, and needs a special dictionary. Such a work has been designed by Mr. Simpson Baikie, and will contain, in three languages, "the terms used in Hunting, Shooting, Fishing, &c., Natural History, and the Sciences."

The first "part" of sixteen pages is now before us, and extends perhaps half way through the letter B. At this early stage of the work, it would be scarcely fair to the author to express an opinion on its merits; but we do not doubt that when completed it will prove of considerable utility to those for whom it is specially designed.